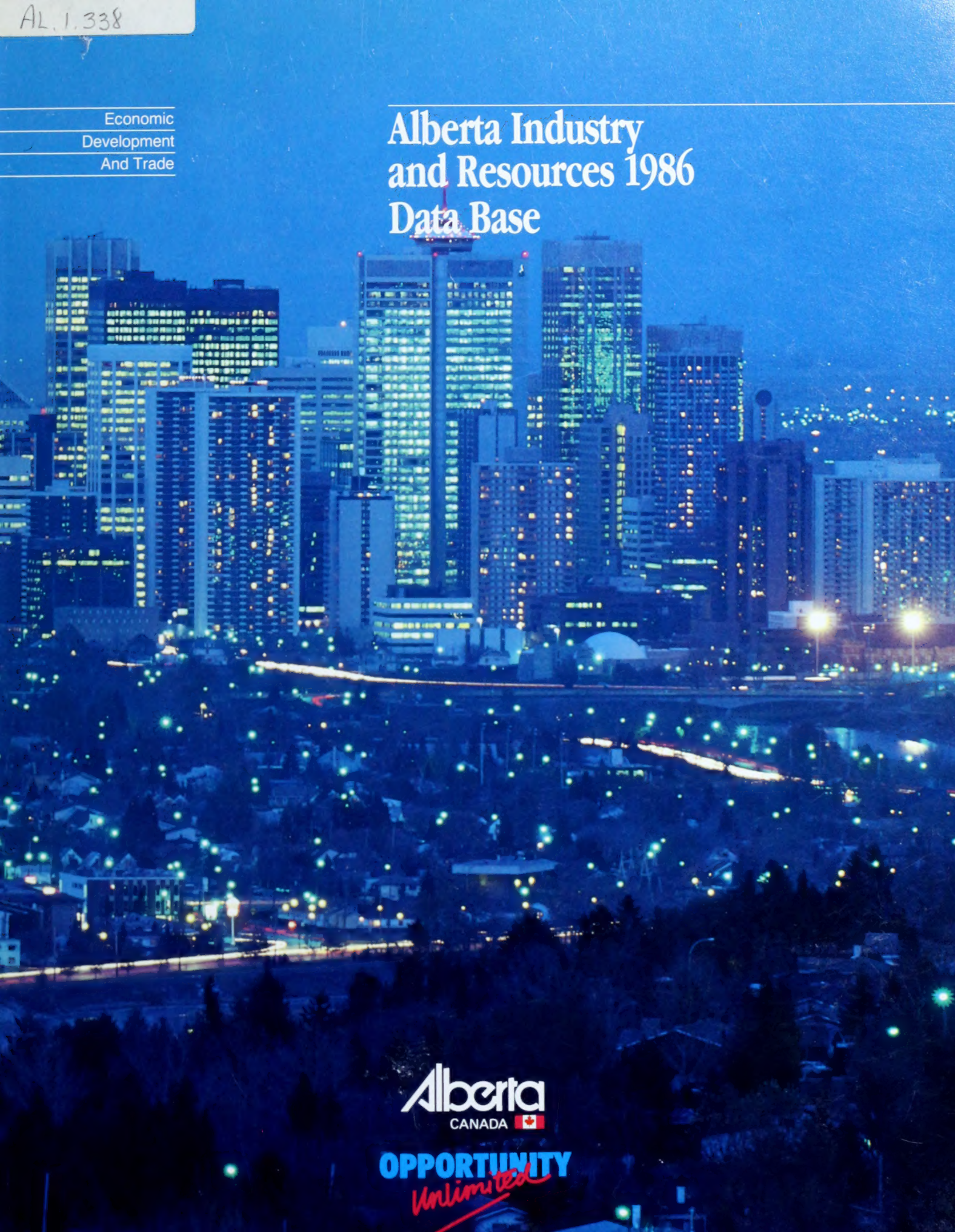
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Message from the Minister

A new mood of confidence has emerged in Alberta. This sense of optimism has been founded on fact, as initiatives to diversify and stabilize the provincial economy have had positive and lasting results. Alberta industries have grown and expanded over the past few years, building on the province's traditional strengths in energy and agriculture.

Diversification into new sectors, along with steady growth of existing industries, is clearly demonstrated in the information presented in this directory of Alberta Industry and Resources. With its wealth of statistical data and analytical information, the Directory shows the extent to which Alberta companies have responded to new opportunities, both within the province and around the world.

As a general reference on the strong surge of economic activity taking place across the province, this Directory will prove to be a valuable resource for readers. Those who do business in Alberta - and those who plan to take advantage of the virtually unlimited opportunities - are invited to contact Alberta Economic Development and Trade for more detailed information on specific areas of interest.



Larry R. Shaben
Economic Development and Trade

Introduction

The past forty years, have been a period of rapid and substantial industrial, economic and population growth for Alberta.

- Population tripled to 2.5 million.
- Manufacturing production increased from less than $0.5 billion to over $16.0 billion.
- Minerals output value rose from less than $150 million to over $27.3 billion.
- Public and private investment in capital stock increased from less than $400 million to the $15 - $20 billion range annually in recent years.

In common with most regional and national economics the apparent exponential growth of the 1970's has been succeeded locally by a period of consolidation and readjustment. On a renewed basis Alberta is preparing for another period of expansion and development — hopefully one without the frenetic and unsustainable pace of the last decade.

The basic regional resources of field, mine, and forest are those which are in greatest and most constant demand. Human and financial resources are available to ensure their effective utilization.

Presented in this publication are statistical data and analytical descriptions concerning the industries and resources of the province. They are general in nature to provide background information for both market research and lay readers. More specific data and informative detail are available from the Department.

The information and data in this publication have come from a wide variety of sources readily identified by the footnotes to the various Tables.

Much of the data comes from either Statistics Canada or the Alberta Bureau of Statistics. Other statistics come from a number of Alberta government departments and agencies. Our debt to these organizations is gratefully acknowledged. At the time of going to press, the data herein published were the latest available; however, new information is being developed regularly and statistics are continually being updated.

Wherever possible, articles were obtained from knowledgeable officials in a variety of Alberta government departments and agencies. Officials of these departments welcome further enquiries concerning their areas of specialty and will supply additional background information not available within the scope of this publication.

We also wish to thank the Alberta government agencies involved in the updating and provision of maps and photographs, and those who assisted in ensuring accuracy and reliability through suggestions and criticisms through the drafting and editing stages.

Alberta Economic Development & Trade
Edmonton, Alberta 1987

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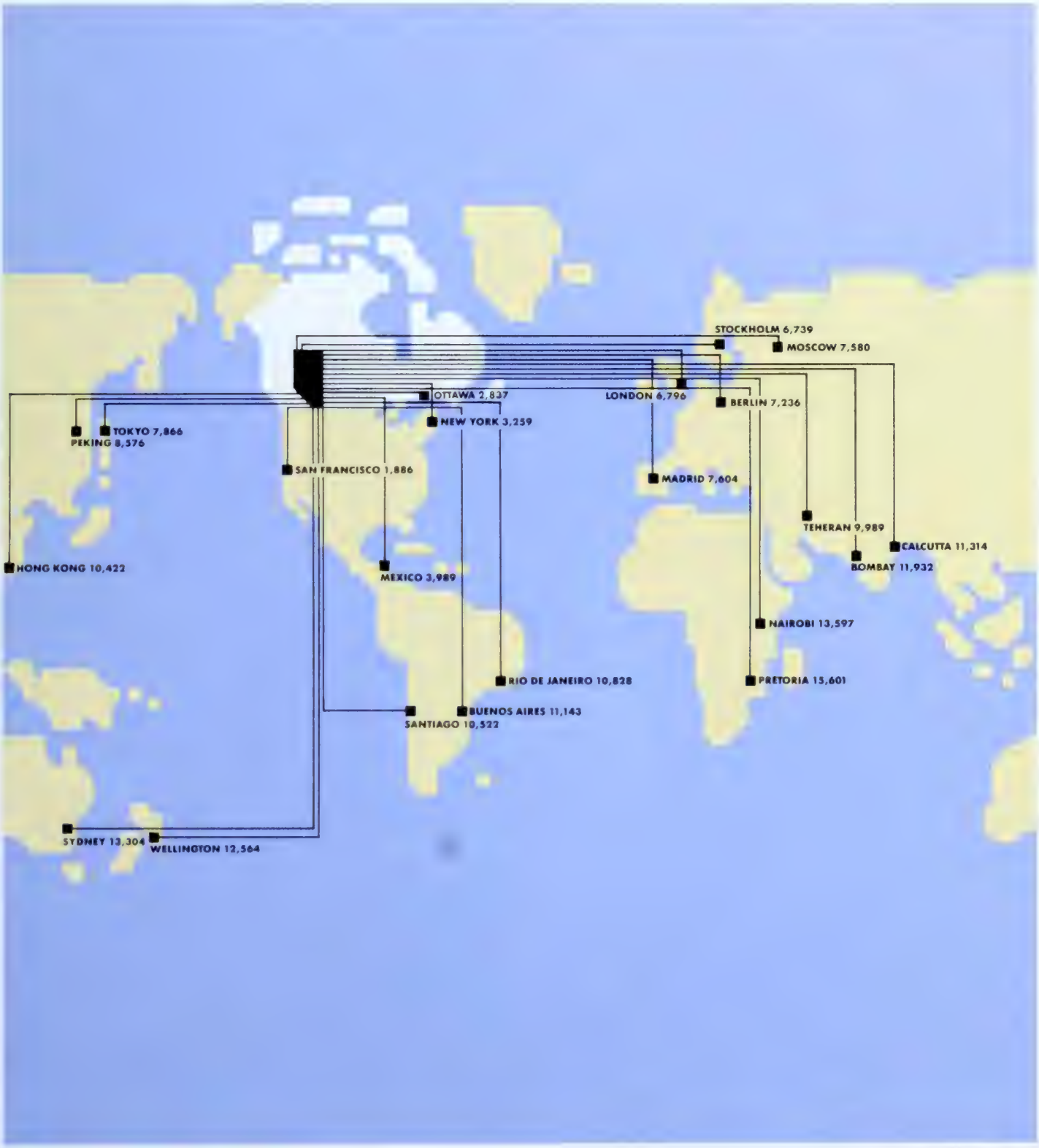
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Alberta in the World



DISTANCE IN KILOMETRES

Province of Opportunity

Rich in agricultural land, minerals, forests, energy resources, and scenic and climatic diversity, western Canada is becoming a major economic and industrial region of the country.

In the hundred years since Canada became a nation and Rupert's land was taken over from a company of adventurers, western Canada has progressed from a fur trappers' fiefdom through a rough and severe era of dependency on subsistence farming, ranching, and lumbering, to another era in which it is reassessing its resources and expecting recognition of its changed prospects.

Over the century of achievement the land was settled and brought under plow, reaper and axe; modern cities were built offering the amenities and cultural opportunities of those in much older societies. Road, rail and airway connections were built to world standards. High quality educational, medical, and social welfare systems were installed. Scientific and technological knowledge was harnessed for the development of mineral, industrial, agricultural and forestry resources.

These achievements owe much to the human, the intellectual, the financial, and the scientific assistance which was attracted from other regions of Canada and from other countries. The presence of the basic natural resources was coupled with a welcome and a willingness of governments to encourage people to take advantage of the proffered aid.

Alberta has an abundance of agricultural land, petroleum energy resources, and forests. British Columbia is rich in timber, minerals, hydro-electric energy, and fertile valleys. Saskatchewan has rich

Free enterprise government policies



agricultural land, uranium and petroleum energy resources and vast deposits of other minerals, particularly potash, basic to many crop fertilizers. Manitoba features hydro-electric energy, mineral resources and good farmland. All four provinces have an ethnically diverse population, many inhabitants only a generation removed from the pioneers who settled and opened up the land. Western Canada can be looked at as a whole market and resource unit with many common features.

From the perspective of the 1980's Alberta's economic evolution has been of two parts dated accidentally, but neatly, as pre- and post-Second World War. In the early period, Alberta had an agricultural economy subject to the annual fluctuations of market prices and weather vagaries. Buoyant prosperity alternated with struggles for survival — physical and financial. In the more recent period, the discovery and exploitation of petroleum energy reserves, coupled with general world-wide prosperity and stability of market demand, brought broader-based economic development featuring; mining, nascent manufacturing industries, commercial expansion, and construction of the physical plant to support and accommodate growth.

The surge of energy prices resulted in increased resource revenues which the government is endeavoring to manage wisely and effectively, aiming to strike a balance between the needs and desires of the present, and an obligation to use part of a current surplus and build a strong economic base for the future.

The mid-1980's declines and fluctuations in oil and gas prices have imposed on business, labour, and government the necessity for greater attention to efficiency and productivity to maintain competitiveness in local and world markets.

All major industries have shown sustained growth and diversification in the post-war period. New crops, such as canola, and new and better varieties of other grains and field crops have been developed and accepted. Livestock breeds and feeding methods have been successfully adopted and adapted. Storage facilities have evolved making local field crop produce available almost year round. Refrigerated transportation makes the local slaughtering and processing of livestock for external markets economically feasible.

The story of the petroleum mining boom is well known. Natural gas is exported deep into the United States, and as far east as Montreal, in Canada. Large volumes of crude oil were also exported to the United States offsetting the large volumes imported from foreign countries into central and eastern Canada. The spin-off and multiplier effects of the mining boom were the more important and long-lasting. In the post-war period, some $220 billion of new capital investment was brought into Alberta. Support and service industries flourished. Manufacturing plants, using petroleum products either as raw materials or as energy sources, were introduced; other types of manufacturing plants were successful because of the general increase in economic activity and incomes. Government revenues from the mining industry were such that most taxes remained low or were even abolished.

Perhaps the greatest effect, however, was the unquantifiable impact on the morale of self-confidence of Albertans in knowing that, for a foreseeable future, they would live in a reasonably secure and stable economic environment.

Manufacturing output is increasing steadily in terms of both growth and diversity as the basis is laid for future expansion and evolution. The heavy dependence on central Canadian and foreign sources for manufactured products is being gradually eroded. Population increases and the increases in general economic activity, make the province ever more attractive as a viable manufacturing base.

To provide the physical infrastructure for a growing population and for the service and support facilities which are among the visible manifestations of economic growth, the construction industry has been extremely active. On a per capita basis, Alberta's annual construction volume has been the highest in Canada for much of the post-war period. The changed cities and landscapes, the quality of traffic arteries, the thousands of kilometres of buried pipeline, and the huge industrial plants extracting petroleum from the oil sands, all attest to the success and diversity of the construction industry. Even under current economic conditions Alberta ranks third in gross, and highest in per capita, volume of the Canadian provinces.

Market opportunities for products and skills exist for those who have the initiative, intuition and drive to seek and develop them. Local, regional and Canadian markets are limited only by population size factors and by the development stages of other forms of industry or commerce. The nearly two and one half million persons of Alberta, the over eight million of western Canada, and the twenty-five million of Canada, all offer distinct sizes and types of markets for different sizes and types of firms. Each of those market groups has doubled in size over the past three decades; enterprises which would not have been viable in 1950, can be in the 1980's. Many enterprises not viable in the past because of lack of related and complementary firms with their ranges of products can be successful today because of industrial development in other fields. Industrial opportunities in Alberta are increasing rapidly.



Exports to American markets have generally involved raw and semi-processed materials. Population concentrations directly to the south are lacking, except along the Pacific coast, making it unrealistic to anticipate southerly flows of trade for many consumer goods. There are large, though variable and uncertain, markets for lumber products, petroleum and semi-processed petrochemical raw materials, chemical fertilizers, and minerals. For most of these products "world scale" or very large organizations and plants are necessary. Many Canadian consumer goods cannot be competitively priced due to the larger sizes of American plants built to serve their own larger markets, and to the tariffs which still shield their own producers. Nevertheless this does not negate the wisdom of exploring individual export opportunities for processed goods, particularly those incorporating specialized design or technology, nor does it negate the basic advantage of the presence of the vast reserves of the vital feedstocks of petroleum, natural gas and coal.

Another exciting and promising development in the post-war period has been the dramatic industrialization of the so-called "Pacific Rim", Asian countries. At this time they represent a prime undeveloped market for raw and upgraded products of mines, fields, and forests. Already, they take significant volumes of coal, grains and forest products. In none of these does Canada have a monopoly nor, given their market status, do Pacific Rim countries have any special obligation to funnel or direct their purchases to Canada. The only certainty is the potential size of the trade opportunity. Realism in prices, wages, profit margins, and production efficiency is required to share in it.

Western Canada, and specifically Alberta, does

have some inherent industrialization disadvantages to overcome. The major population concentrations of North America and of other countries are distant; given its immense area the regional population is still relatively sparse as well. Older, longer settled regions have longstanding advantages and vested interests in established financial and industrial complexes. Western Canada has not yet amassed its own pools of financial and human capital to use in independent self-development — though this constraint may fade relatively rapidly.

Although progress has been significant, especially in the post-war period, the industrial complex of western Canada is not yet an interlocking, self-generating, self-perpetuating, melded group of plants. Most major plants were built to process raw materials for finishing plants in other regions closer to large markets.

Regional advantages, are potent forces. The harnessing of energy has been the distinguishing factor of the industrial revolution of modern times. An abundance of energy resources is a central and major advantage possessed by Alberta. Whether used regionally for industrial development, or exported to other regions, it is of an intrinsic advantage to the possessors. Long term assurance of supply will likely become an increasingly important factor in industrial location decisions.

Coal, natural gas and petroleum resources are present in abundance. No less impressive is the list of other mineral, timber and agricultural resources in terms of both volume and variety.

Alberta welcomes industry and industrial growth. In recent years significant caveats have been placed on development to ensure environmental protection of land, water, air and health, but such restrictions are becoming universally accepted and welcomed phenomena. Public acceptance of industrial growth is based on the desires for security of employment, wider ranges of choice of occupations, and for the opportunities to acquire the products of technology and science.

Outside investment, whether national or foreign, is welcomed to finance the major large scale industrial developments. Large capital infusions are usually accompanied by the managerial and technical expertise needed to ensure that they are used efficiently, effectively, and profitably. In the process, a generation of native talent is being trained.

The Alberta government is supportive of the free enterprise philosophy. It encourages business activity that operates in a manner compatible with continuing economic development and protection of the local public interest. Health, safety, and work standards are set and enforced. Labour and management bargaining procedures are laid down and supervised. Labour force training through schools, universities, technical institutes and apprenticeship programs is provided and encouraged.

Though the vast bulk of industrial development is expected to be unassisted and privately financed, measures are in place for aiding small businesses, both urban and rural.

At the other end of the scale, assistance and arrangements are made to encourage and stimulate the huge natural resource developments which put strains on even the largest private companies.

It is both feasible and probable that the pace of Alberta's industrial and population growth will, for the foreseeable future, far exceed that of less favoured areas. Petroleum and natural gas are likely to remain the preferred energy sources, both because of their transportation advantages and because of the tremendous existing capital investment in machines and industries which have been developed to use them. Although conventional resources of petroleum are becoming more scarce, the tremendous quantities contained in the oil sands are defined, and initial attempts at extraction and processing are proving successful. It is expected that tremendous amounts of financial capital will continue to be expended on oil extraction plants over the balance of this century and into the next. The industrial stimulus given to western Canada in the construction and maintenance of the plants, new towns and cities, and of the service and support facilities, is certain to exceed that which accompanied the development of the conventional oil resources during the last generation. Because of the industrial and commercial maturity which accrued then, it is likely that the multiplier and spin-off effects will be even greater in this second round.

If these regional developments can be accompanied by successful entry into wider markets, future industrial development prospects are very bright.

In the pages which follow are statements and data recording the economic progress of Alberta in recent years.

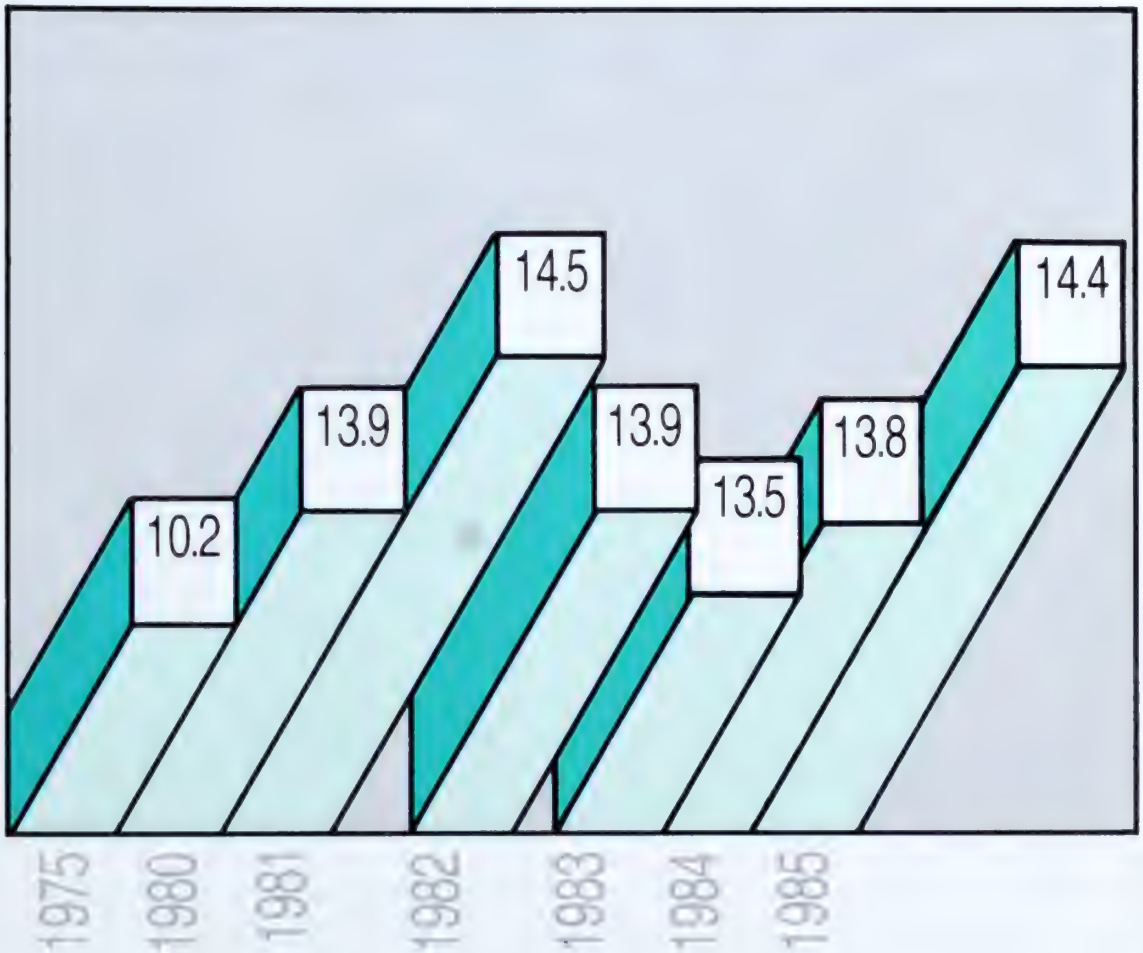
Economic Accounts

The economic accounts provide a measure of the economic performance of a region. Alberta's economic growth can be measured by Gross Domestic Product (GDP) which indicates the value of total production within the geographical boundaries of the province

In current dollars, Alberta's GDP reached $62 billion in 1985. This represents an average annual growth rate of almost 13 per cent from 1975. 1981 was the peak in over a decade of strong, broadly-based economic growth, largely generated by the rapid rise in world oil prices. This was followed by an economic downturn in 1982 and 1983 which was precipitated by the global recession and accentuated by a rapid decline in investment upon the introduction of the Government of Canada's National Energy Program. The economy turned around in 1984 and recovered strongly in 1985 with nominal GDP growing by 7.5 per cent. The resurgence was widely distributed reflecting increased consumption and investment due in part to a more attractive environment for the energy sector.

In constant (1971) dollars, the value of Alberta's real GDP for 1985 was $14.4 billion. Real GDP has

ALBERTA GROSS DOMESTIC PRODUCT IN CONSTANT (1971) DOLLARS 1975, 1980-1985 - BILLIONS OF DOLLARS



increased at an average annual growth rate of 3.5 per cent since 1975. Both current and constant dollar estimates indicate that economic growth in Alberta has been strong during the past decade. In 1985, Alberta, with 9.3 per cent of Canada's population, accounted for about 13 per cent of Canada's total domestic production.

Consumer expenditure has been a consistent source of strength for the Alberta economy. Sales to persons constituted 43 per cent of GDP in 1985, compared to 42 per cent in 1975. Gross fixed capital formation (investment) reached its peak in 1981. After several years of weak economic performance, investment rebounded in 1985 and accounted for 21.1 per cent of GDP. Expenditure on goods and services by federal, provincial and municipal governments increased from 13.7 per cent of GDP in 1975 to 15.1 per cent in 1985 but is below the Canadian average of 19.9 per cent. Alberta's exports to both the rest of Canada and to other countries have remained strong. Since 1975, the increase in exports was primarily due to the rising value of oil and gas and related product exports. Net exports contributed 16 per cent of provincial GDP in 1985.

While Alberta's economy features a substantial degree of diversification, Alberta retains a relatively large primary sector, concentrated in the production of crude oil and natural gas, and agriculture. In 1985, the primary sector accounted for about 31 per cent of Alberta's GDP at factor cost. The secondary sector, composed of manufacturing and construction, comprised about 11 per cent of GDP and the service sector contributed about 58 per cent to GDP.

Personal income is a measure of all incomes including wages, salaries and supplementary income, income of unincorporated businesses, farm income, investment income of persons and government transfer payments to persons (excluding interest on the public debt and capital assistance.)

In 1985, wages and salaries accounted for about 64 per cent of the total compared to about 43 per cent at the end of World War II. The second largest source of income is interest, dividends and miscellaneous investment income.

Historically, Alberta's per capita personal income has closely paralleled that of all Canadians. Since 1973 however, per capita personal income in Alberta has been well above the Canadian average and reached $16,455 in 1985 compared with the Canadian average of $15,473.

For data on this subject please refer to table 1.2 in the Appendix

Private and Public Investment

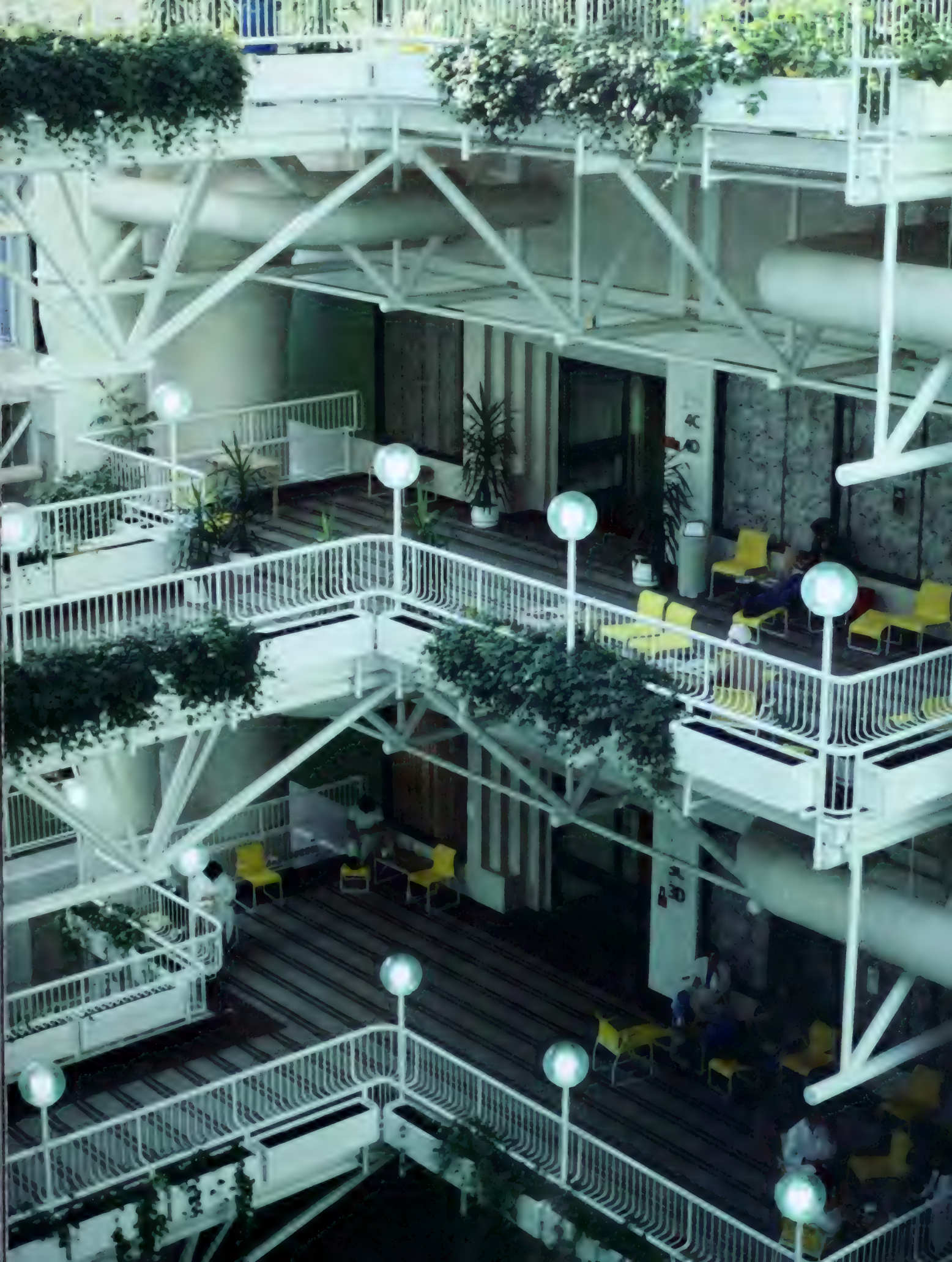
Investment volume is one of the key indicators of growth in an economy; even more it is an indicator of investor confidence in the security, profitability and prospects of industry in a given locale. By these criteria, Alberta has fared very well in the post-war period.

In 1950, total private and public investment in Alberta was estimated at $521 million with a per capita investment of about $570. By 1980, volume of investment had risen to $17,003 milion, and per capita investment to $7,939.

Annual investment peaked in 1981 at $21,846 million. It has since decreased to the 1980 level due to the impact of the world wide economic recession.

The increase in both volume and annual growth rates of investment can be attributed to two major economic developments, both involving the petroleum industry, that occurred over the thirty-year span. The first was the bringing into production of the conventional oil and gas resources, and, more recently, of the reserves contained in the Athabasca oil sands. The second was the sharp and sudden rise in the unit

Per capita investment in Alberta highest in Canada



petroleum energy prices after 1973. Both developments triggered and spurred a range of related activities: population influxes, housing and commercial booms, increased local manufacturing and processing, higher government revenues and expenditures, and the financial investments attracted by a flourishing and stable economy.

Primary industries and construction, particularly involving the petroleum mining industry, have accounted for between 28 per cent and 45 per cent of annual investments over the thirty-five year span. In recent years, manufacturing, utilities and services have been attracting increasing proportions.

Although precise figures are not available, the bulk of the investments in petroleum development and in manufacturing have been made by large firms. The pace of growth and volume of investments in these key industries have provided the necessity and justification for investment expenditures in other businesses and industries. The specific effects of these investments on employment and output are shown in the industry sections of this publication.

The growth rate in investment was not maintained in the early 1980's due to the impact of the world wide economic recession. However, given the world shortages of petroleum energy resources, the known volumes of petroleum components locked in the oil sands, and the related industry growth which accompanies petroleum development, it is likely that the rates and volume of investments will rebound and continue to increase in the foreseeable future. The multiplier effects of this investment will also continue to be beneficial and stimulative throughout western and central Canada.

For data on this subject please refer to tables 1.3 and 2.10 in the Appendix



Alberta Heritage Savings Trust Fund

The Heritage Fund was created in 1976 with the passage of the Alberta Heritage Savings Trust Fund Act. In deciding to save a portion of provincial non-renewable resource revenues in a Heritage Fund, the Legislature recognized that Alberta's conventional oil and gas resources will be depleted over time and that the revenues they generate can fluctuate with factors beyond provincial control, such as international oil and gas prices. The savings in the Heritage Fund provide the government with another source of revenue when needed. The Heritage Fund is therefore a key tool in financial management strategy

The savings in the Heritage Fund give the government needed financial flexibility. For instance, when the Alberta economy weakened in 1982 and government resource and tax revenue actually dropped, the government had the Heritage Fund to fall back on. Since September, 1982, all the investment income of the Heritage Fund has been transferred to the provincial budget to help meet the costs of government services. In 1985-86 this income of $1.67 billion paid for these day-to-day services for the equivalent of two months out of twelve. As a result, Alberta has been able to maintain government services and to retain the lowest taxes of any province.

Until the end of the 1982-83 fiscal year, the Heritage Fund received 30% of provincial non-renewable resource revenue. In 1983-84, the transfer of resource revenue was reduced to 15% as a further response to budgetary requirements. The 15% transfer amounted to $685 million in 1985-86.

The monies set aside in the Fund are invested for the benefit of Albertans now and in the future. By 1986 the Heritage Fund had financial assets of $12.7 billion.

The Heritage Fund has five investment divisions: the Alberta Investment Division, the Capital Projects Division, the Energy Investment Division, the Canada Investment Division and the Commercial Investment Division. The Heritage Fund Act specifies distinct investment criteria for each division. Funds not allocated to these divisions are invested in deposits



and marketable securities. Authority to make investments is vested in the Legislature, the Heritage Savings Trust Fund Investment Committee (the Provincial Cabinet), or the Provincial Treasurer, depending on the nature of the investment. The Heritage Fund is held and administered by the Provincial Treasurer.

Over 64% of the Fund's financial assets -- $8.2 billion --is invested under the Alberta Investment Division. Investments must yield a reasonable return or profit and tend to strengthen or diversify the economy of Alberta. Over 90% of the Division's investments are debentures issued by provincial Crown corporations and carrying market rates of interest. These Crown corporations deliver a variety of programs that further provincial development objectives. For instance, the Division's investments in these corporations have helped finance affordable housing, provided capital for developing farms and small businesses, and financed municipal public works.

In addition, through this Division the Heritage Fund has financed projects such as the construction of a major grain terminal at Prince Rupert, British Columbia. Built and operated by a consortium of grain co-operatives and companies, at full capacity this facility will boost Alberta's grain export potential from Canada's Pacific coast by 20%. With this added capacity, the movement of Alberta grain to market will be significantly enhanced. Other investments include a 16.74% participation in the Syncrude oil sands project at Fort McMurray, Alberta and 37% ownership of the Alberta Energy Company.

Through the Canada Investment Division nearly $1.9 billion is invested in debentures issued by the governments of six other Canadian provinces or their agencies. Loans were suspended in 1982 in order to make available additional funds to meet priority needs within Alberta.

The primary objective of the Commercial Investment Division is to earn a commercial rate of return in keeping with the Heritage Fund's overall savings objective. At the end of the 1985-86 fiscal year, the Commercial Investment Division had total investments (at cost) of $217 million of which $208 million was in Canadian equities and convertible bonds with the remainder invested in short term money market securities. The market value of the portfolio at the end of 1985-86 was $375 million. The equity portfolio is diversified, representing a broad range of Canadian industrial sectors and public companies. Investments are managed on a passive basis and are limited to no more than 5 per cent of the outstanding shares of any one company.

For data on this subject please refer to table 1.4 in the Appendix

Alberta Financial Institutions

During the 1970's and early 1980's Alberta's financial infrastructure deepened and broadened rapidly as a result of very strong economic growth and the energy boom. Major national financial institutions intensified their involvement in the local economy and delegated larger decision-making responsibilities to their Alberta-based executives. In addition, there came into being a variety of new locally headquartered financial institutions. The net effect was to benefit the local economy directly through the growth of employment in the financial services sector and indirectly through the availability of better, more immediate and diversified access to financial services for local businesses.

Since 1982, the financial sector has undergone a period of consolidation and retrenchment as the local and national economy suffered a severe recession. Energy prices declined drastically in 1985-86.

The financial sector was severely jolted in 1985 by the collapse of two Schedule A chartered banks based in Alberta. It was a crisis of major proportions as the country had not experienced a banking failure for 60 years. These bank failures created a ripple effect elsewhere in the Alberta financial sector resulting in further consolidation and rationalization.

The consolidation had but a marginal impact on bank assets. As of Mar. 31, 1986, total bank assets in Alberta declined only by 2.4% from a year earlier and were down by a little over 5% from their peak in 1983.

The Treasury Branches continued to expand operations, again demonstrating their value to local consumers, farmers, and businessmen. Since its inception, as a supplement to the financial services offered by the banking system, the organization has increased its asset base steadily: it exceeded $4 billion by March 31, 1985. Between 1984 and 1985 total assets rose in excess of 24%.

Trust companies and credit unions were adversely affected in their deposit-taking operations by the failure of the Alberta based banks, depositors' favouring large and seemingly higher quality financial institutions. On the asset side of their operations, their exposure to real estate value declines adversely affected their profitability.

Despite consolidation and rationalization, the Alberta Venture Capital fund, VENCAP, was success-

fully launched in 1984. Shares were bought by a cross section of Alberta residents. Early 1986, the government introduced the Alberta Stock Savings Plan, the primary objective of which is to stimulate investment in small and medium size businesses and thereby increase the equity base of such businesses and create jobs

The Alberta Stock Exchange had another successful year of operation in 1985. The value of transactions on the Exchange increased by more than 40% between 1984 and 1985.

For data on this subject please refer to tables 1.5 and 1.6 in the Appendix

Alberta Agency for International Development

It is through this agency that the Government of Alberta conducts its international assistance program, providing financial assistance in support of development projects and programs in less developed countries

The largest program of any province in Canada, approximately 500 projects receive assistance each year in about 80 countries. Total assistance provided in 1983-84 was $7 million and $10 million in 1984-85

The program is conducted in cooperation with about 80 Canadian Non-Governmental Organizations (NGOs). These are not-for-profit international development agencies to which the people of Alberta make voluntary financial contributions. An NGO is required to contribute to a project from its privately raised funds an amount at least equal to the amount it is receiving from the Government of Alberta

Projects receiving support are normally small scale development activities at the village level and in rural areas of less developed countries. Such projects are usually designed to assist in increasing production (especially food production), increase incomes, create employment and impart new and practical skills to people. Assistance is also provided for projects designed to relieve suffering of people in emergency situations, such as drought and natural calamities

The program has been in operation for 10 years and in that time has become an integral part of Canada's international assistance community.



Industries

Manufacturing

As the Alberta economy expands and diversifies, manufacturing continues to play a significant role in development and growth. Substantial progress has been achieved, particularly over the last decade, toward diversifying types of goods produced, toward entering more domestic and international markets in which the products are sold, and toward balanced growth of manufacturing opportunities throughout the province. All of these developments lessen dependence on the sale of unprocessed resources and the vagaries of world commodity markets

Key indicators of the significance of manufacturing include the number of persons employed, the variety of finished and semi-finished goods produced, the gross value of production in real terms, and the volume of new investment in plant and equipment.

Manufacturing shipments in 1985 were valued at $16.1 billion, an increase of more than $1 billion over the previous year. Non-durable goods industries -notably food and beverages, chemicals and chemical products, and refined petroleum products - accounted for about three-quarters of the increase. Durable goods industries, which include primary metals, fabricated metal products, wood, and machinery industries, accounted for the remaining growth.

Over 6 percent of Gross Domestic Product in 1985 was accounted for by manufacturing. By value, it increased 27.4 percent in real terms over the period 1975 to 1984. This compares to a national growth rate over the same period of 7.4 percent. In 1975, the industry provided employment for 71,000 persons. By 1985, the level had increased to 87,000, roughly 7 percent of the total labour force.

Annual investment in manufacturing plants grew rapidly from a modest $441 million in 1975 to $1,125 million in 1984. Expenditures on plant and equipment rose steadily in the traditional food and beverages, wood products, metal fabricating, and non-metallic mineral products industries. More significant increases occurred in the chemical and chemical products, petroleum refining, transportation equipment, and iron and steel industries.

Rationalization of production in some industries has led to lower investment levels than those characteristic in the boom years of the early 1980's. As some plants operate near capacity, increasing proportions of investment spending are being allocated to repair expenditures rather than to purchases of new capital equipment.

Diversification implies the production of additional ranges of semi-processed and finished goods and includes some types of upgrading of raw resources. It may also imply a notable shift in the proportions of product mix. Both phenomena are evident over the whole post-war period and especially during the last decade.

Most apparent have been the changes in overall product mix. While maintaining a large and important presence in the manufacturing industry, the predominance of the food and beverage industry has diminished with the rapid expansion of chemicals manufacturing, and petroleum refining. The plastic processing industry, too, has grown rapidly in the past several years with firms expanding in the plastic film, food packaging, and industrial plastic container markets. Growth has been widespread and broadly based, laying the foundation for future diversification of products, and less dependence on out-of-province sources.

Food and beverage production in Alberta now ranks second to petroleum refining: the value of shipments accounting for 25.5 percent of the total of all manufacturing. Rationalization has occurred, to some extent, in the meat packing and dairy industries, resulting in the modernization and expansion of their facilities. Flours, cereals, feed, and bakery products manufacturers comprise a large and growing segment



of the food industry. The beverages industry, which accounted for one percent of the number of manufacturing establishments and for 4.2 percent of total value added, remains a stable and profitable industry.

Forestry based industries, comprised of wood and paper products, printing and furniture companies, benefit from a large, secure supply of good quality timber. The four groups account for roughly one-third of establishments and about one-fifth of total value added in manufacturing. Wood products - particularly those produced by sawmills, planing and shingle mills - lead slightly in share of manufacturing shipments while printing accounted for the largest share of value added. Oriented strand board and thermo-mechanical plant expansions, and expanding Asian and European markets for northern softwood pulp, will contribute to the continued growth of the paper products industry. Market development in eastern Canada and the western United States contribute to the strong performance of the furniture industry, comprised mainly of institutional and household furniture fixtures.

The metal working and transportation equipment industries comprise four subgroups: primary metals, fabricated metals, machinery, and transportation equipment. The primary metals industry accounts for the largest share of value added with about one third contributed by steel pipe & tube companies. Production in the industry is largely integrated and benefits from a flexible and advanced technological infrastructure. The fabricated metal products industry leads in the number of manufacturing establishments and many of these companies are small and innovative enterprises pursuing diversified markets and product lines. Resource machinery and equipment account for roughly three-quarters of the value added in the machinery industry which benefits from a natural market both within and outside the province.

The chemical and chemical products industry accounted for about 16 percent of value added in manufacturing in 1984 with the bulk of activity taking place in organic industrial and agricultural chemicals. Major local and multinational companies have invested over $4 billion during the last ten years to build plants which produce methanol, ethylene products, and fertilizers. This investment came as a result of the large, secure, and competitively priced natural gas resource, delivered through a well integrated pipeline system.

As well, the development of engineering project management, construction, and production expertise contributes to the design, construction and operation of world class petrochemical resource development plants.

Alberta has developed into the petroleum refinery centre for western Canada with modern facilities producing a variety of products. Plant sidestreams have the potential to be further upgraded into additional petrochemicals.

Plastics manufacturing companies are involved in a variety of segments, the largest being thermoplastic moulding, thermoplastic extrusion, and fiberglass composites. Foamed and expanded plastics products and plastic pipe and pipe fittings manufacturers accounted for over 40 percent of the industry's value added in 1984.

Many firms continue to take advantage of upgrading basic plastic resins into higher value added products. The growth rate in this sector has been rapid with the value of shipments nearly tripling between 1979 and 1985 from $755 million to $2.1 billion.

Textiles processing includes geotextile materials fabrication and manufacturing for engineering applications.

Local electronics manufacturers have generally seen an improvement in market conditions, particularly in export markets. By identifying specific market niches for industrial electronics products and developing products for these markets, they have demonstrated the ability to compete internationally. The majority of value added is attributable to the telecommunications equipment industry.

One government goal is to balance the opportunities for growth throughout the various regions and centres of the province. Decentralization of manufacturing activity is encouraged wherever justified by economics and practicality. It is appreciated fully that interdependent manufacturers prefer to be in close proximity in order to minimize transportation costs of parts and materials; that resource based industries are best sited near their sources of raw materials; and that market based industries are best situated as close as possible to their markets.

Decentralization forestalls population and industrial congestion in large urban centres and helps stimulate development and provide economic security for small centres. Evidence that this has occurred is apparent in manufacturing employment trends. Regional areas accounted for a significant portion of employment increases over the period 1976 to 1983. The two major metropolitan centres - Calgary and Edmonton - accounted for 61 percent of manufacturing employment in 1976: by 1983 the proportion had decreased to 56 percent. Similarly, the share of manufacturing shipments of the two cities fell from 51 percent in 1976 to 35 percent in 1983, with most of the growth picked up in regions surrounding the metropolitan centres.

No longer restrained by traditional market disadvantages such as a relatively small domestic population, an increasingly mature economy ensures

the continued growth of the manufacturing industry. Population growth in Alberta, western Canada, and in markets in the United States, Pacific Asia and other countries continue to provide ever larger and more affluent markets.

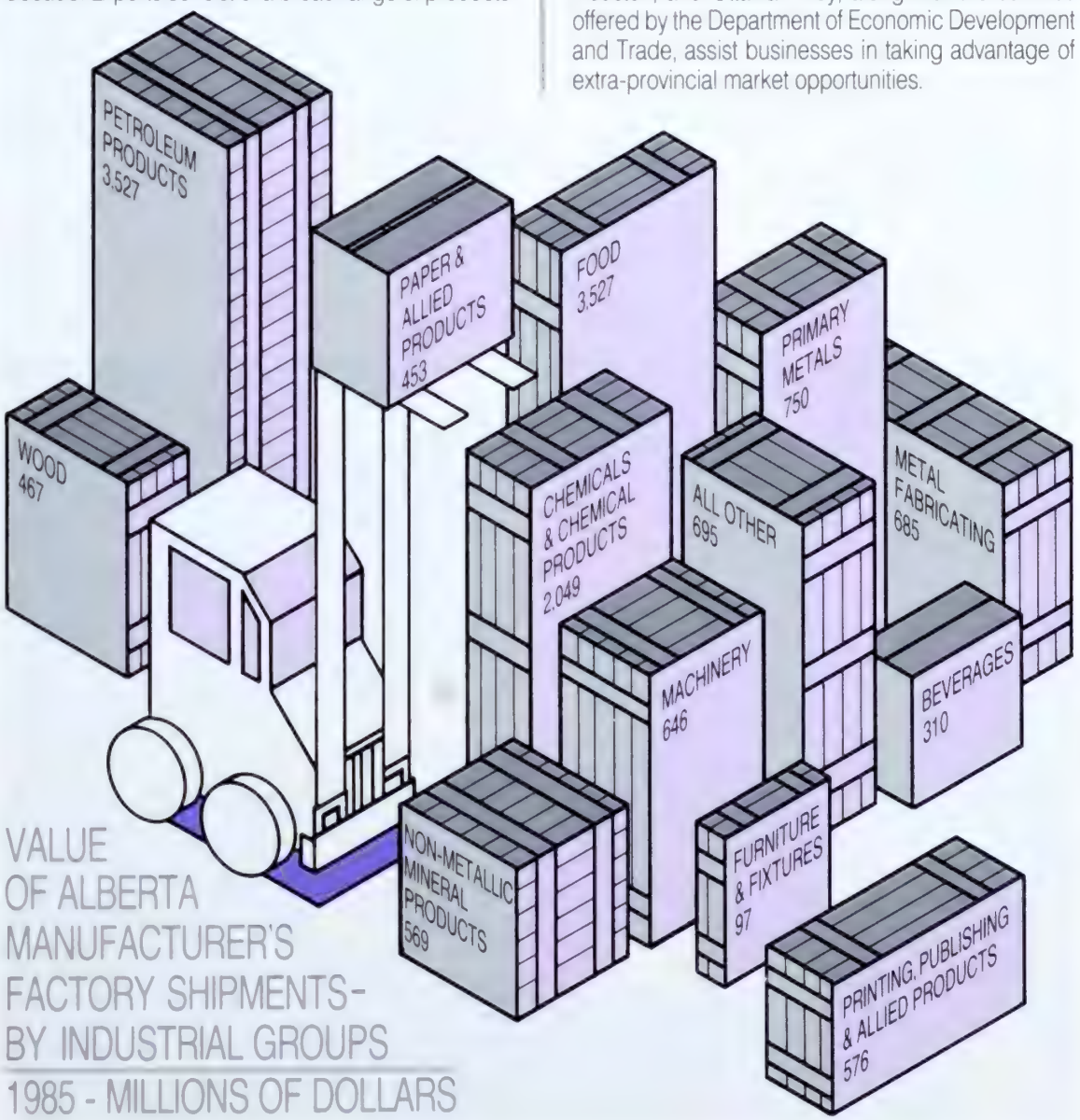
A central location provides a favourable setting for serving all of western Canada and some of the western United States. It also offers a relatively favourable base for manufacturing certain products to take advantage of the significant market opportunities which are opening up in the Pacific Rim countries.

Many firms are successfully exporting to continental and world markets in addition to servicing regional needs.

Out of country exports of manufactured products in 1985 were in excess of $3 billion, representing a two-fold real increase over the last decade. Exports consist of a broad range of products including processed meat, whiskey, wood pulp and lumber products, chemicals, fertilizers, oil field equipment, agricultural machinery, aircraft parts, telecommunications equipment, and prefabricated buildings.

The attractiveness of the domestic market is enhanced by a government committed to a free enterprise philosophy. The province offers the lowest general corporate income tax rate at 11 percent, reduced to 5 percent on income from manufacturing and processing. Small businesses engaged in manufacturing activity pay no income tax. The industry also benefits from a highly trained, stable work force and an assured supply of competitively priced energy resources.

Alberta government representatives are based in London, Tokyo, New York, Hong Kong, Los Angeles, Houston, and Ottawa. They, along with the services offered by the Department of Economic Development and Trade, assist businesses in taking advantage of extra-provincial market opportunities.



VALUE OF ALBERTA MANUFACTURER'S FACTORY SHIPMENTS- BY INDUSTRIAL GROUPS 1985 - MILLIONS OF DOLLARS

Provincial government policy is to encourage local processing of resources and to sustain an economic climate for private sector profits and investment, in order to maximize the opportunity for secure and skilled jobs for Albertans. This policy is being implemented in a variety of ways.

With respect to technological support, the Alberta Research Council (ARC) conducts research in support of economic development. ARC activities include cooperative research projects with Alberta companies in areas of industrial and engineering research, advanced technologies, applied sciences, oil sands, coal, and natural resources. This technological service is available to small Alberta firms at little or no cost. More extensive research can be performed on a contractual basis.

The Alberta Microelectronics Centre encourages the application of microelectronics in manufacturing and processing industries. The Alberta Laser Institute encourages and assists industry with the development and implementation of laser systems to provide a more cost effective production technology.

The objective of the Food Processing Development Centre in Leduc is to increase the capability of food processors to meet the needs of the market place through application of new technology and development of new products and processes. Research ranges from product development to processing and packaging, and includes meat, dairy, oilseed, vegetable, and cereal products. Several other centres and facilities exist to assist manufacturers in the development and application of frontier technologies.

A recent initiative was the establishment of a new container distribution system which reduces the costs of Alberta companies shipping goods to the west coast for export. The container company known as Alberta Intermodal Services Ltd. became operational in 1986. Yard facilities are available for storage of containers and container highway trailers in close proximity to CP rail intermodal terminals in Calgary, Edmonton, and Vancouver. More generally, assistance is given for the provision of adequate road and other transportation facilities necessary for industrial expansion and access.

Technological and trades training institutions are among the best and most extensive in Canada and provide a constant stream of highly skilled and well qualified personnel for industrial and commercial firms. A government goal is to upgrade work skills to create higher productivity, high job marketability, and greater job satisfaction which flow from higher skill levels.

The cumulative impact of these and other services is evident in the rapidly expanding industrial base of the province, particularly in recent years.

For data on this subject please refer to tables 2.2 to 2.10 in the Appendix



Agriculture

Agricultural land is one of Alberta's great natural resources. Nearly 20 million hectares are used in crop and livestock production with approximately 11 million hectares classified as cultivated. In addition, it is estimated another 9 million hectares could be brought under cultivation and added to the present farmland inventory. Many thousands of acres of this land have been made fertile through the establishment of irrigation districts. More are being added annually as the areas under irrigation spread.

With such prime agricultural land, Alberta has developed one of the most productive agricultural economies in the world. Alberta produces 20 per cent of the total Canadian agricultural output with approximately 9 per cent of the country's population. In view of Alberta's small population and food consumption, export marketing of agricultural products is of prime importance. Present and potential markets are constantly being scrutinized by marketing specialists

The trend is to larger, more viable farms through consolidation of existing operations. Twenty years ago the average farm size was 223 hectares; at present it is about 350 hectares. The increase in farm size and the steady upward trend in farm input costs have forced farmers to be more efficient, reducing unit production cost and thus competing favourably in present markets. Total farm capital in 1981 was estimated at $36 billion, representing an average investment per farm of $630,000

World demand for an ever-increasing variety of agricultural commodities is being met by Alberta farmers who diversify their production, add new crops or alter existing ones by changing varieties. For example, while canola was virtually unknown to Alberta farmers 20 years ago, today canola production exceeds a million tonnes annually.

Most of the cultivated area in Alberta is seeded to wheat, barley, tame hay, canola, oats, mixed grains, rye and flaxseed in that order. Receipts from the sale of wheat, oats, barley, canola and flaxseed account for over 90 per cent of the total farm cash receipts from crops; wheat sales consistently predominate in value The lower cash receipts from barley reflect the relatively large volume of barley fed to livestock

Specialty crops, which include dehydrated alfalfa, sugar beets, mustard seed, dry beans, vegetables, potatoes, forage seed, and honey are becoming more promising. Producers of specialty crops are relatively few in number and usually have acquired expertise in growing and marketing. Irrigated areas in southern Alberta are among the leading districts of

One of Alberta's strongest industries

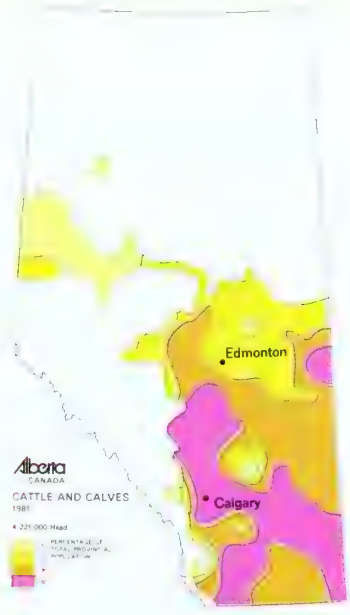
specialty crop production and, as irrigation continues to expand, undoubtedly so will the production of these crops. High summer temperatures and a long growing season make possible the production of many crops that cannot be grown successfully in central and northern areas

Ample soils of suitable textures are available for growing vegetables in increasing variety and volume, filling local demand for consumption and canning. Progress has been made in solving problems associated with cooling, processing, grading, packaging and storage, extending the period during which quality can be maintained. Varieties of green peppers and tomatoes, suited to the climatic conditions, have been developed and are appearing throughout local markets. Locally grown carrots, turnips, and potatoes are now marketed most of the year. Nevertheless, the vegetable industry has to contend with stiff competition from American producers. Vegetable production is very seasonal. Storage, because of the colder climate, is also more expensive. Although self-sufficiency is an objective, the regional population is not large enough to support a large industry. The trend elsewhere has been toward more vertical integration in which producers add processing and packaging to their operations and this is likely to be parallelled in Alberta.

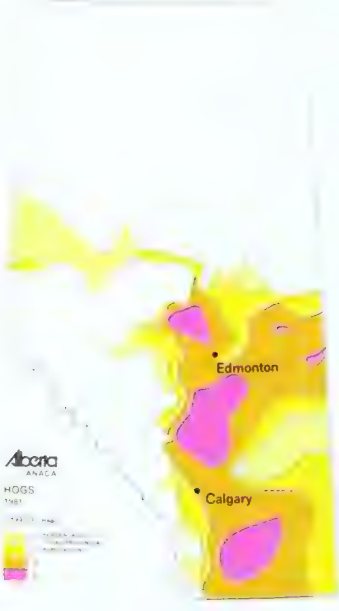
The use of fertilizer has increased substantially over the past 25 years. Initial acceptance of fertilizer occurred during the early 1950's when annual use was in the 27,000 - 36,000 tonne range. Fertilizer sales soared to an annual use of over 900,000 tonnes but volume usage is affected by the changes in the grain market. There is a trend toward more convenience and efficiency through the use of bulk fertilizer.


Edmonton
Calgary
Alberta
CANADA
BARLEY


Edmonton
Calgary
Alberta
CANADA
CANOLA
1981


Edmonton
Calgary
Alberta
CANADA
CATTLE AND CALVES
1981

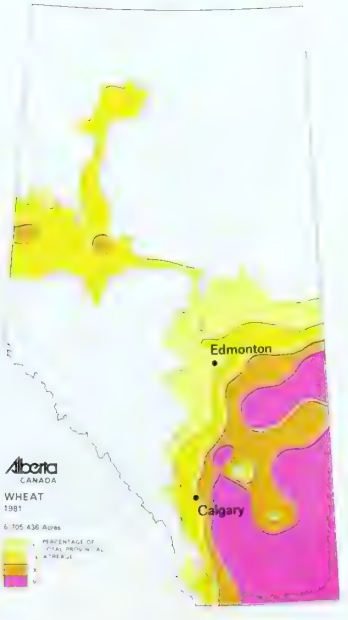

Edmonton
Calgary
Alberta
CANADA
FLAXSEED


Edmonton
Calgary
Alberta
CANADA
HOGS
1981


Edmonton
Calgary
Alberta
CANADA
MILK COWS
1981


Edmonton
Calgary
Alberta
CANADA


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RYE
1981


Edmonton
Calgary
Alberta
CANADA
WHEAT
1981



Alberta is a net importer of herbicides and insecticides. The broadleaf herbicide 2,4-D and a drill box treatment for cereal grains are being produced locally. The use of chemicals has increased but, as with fertilizers, sales are affected by the buoyancy of the grain market

A major portion of the increased capital involved in agriculture continues to be directed towards increasing livestock production. Alberta maintains the largest livestock population of the western provinces, accounting for 48 per cent of the cattle and calves, 41 per cent of the hogs and nearly 55 per cent of the sheep and lambs. The expansion of cattle feeding and slaughtering facilities and improved refrigerated transportation equipment have resulted in an increase in the proportion of livestock locally processed

During the past 25 years there have been three major "cattle cycles". The last two have had a considerable effect on farming communities. After each contraction-expansion phase, herd inventories have been higher than when the cycle started. Twenty-five years ago Alberta's annual slaughtering totalled slightly more than 250,000 head of cattle and calves; current cattle slaughterings exceed 1.2 million head. Most of the beef cattle are raised on mixed farms in central and northern Alberta. Of the 56,000 farms in the province, 35,000 have cattle. For many mixed farmers, cattle are a complementary enterprise with animals pasturing on the land that cannot be cropped. Hay and pastures are part of crop rotations; not only do they provide feed for livestock, they build up the soil.

The hog industry has changed over the years. Hog slaughterings increased from just over 600,000 in 1951 to just under 2 million in 1971; since then, production has dropped substantially. There are now only about 10,000 farmers raising hogs as compared with 41,000 in the early 1960's. The average annual farm production is 150 animals; 15 years ago the corresponding figure was 39. Some 76 per cent of all hogs produced come from 1,200 farms. Hog raising is complementary to grain growing as the animals can be used as an alternative marketing channel for surplus of overly cheap feed grains and wheat.

Sheep production is also becoming increasingly concentrated; fewer producers market the majority of sheep and lambs for slaughter.

Over the last 15 years, there have been substantial changes in the total amount of cash income Alberta farmers have received. Annual farm cash receipts have increased from approximately $600

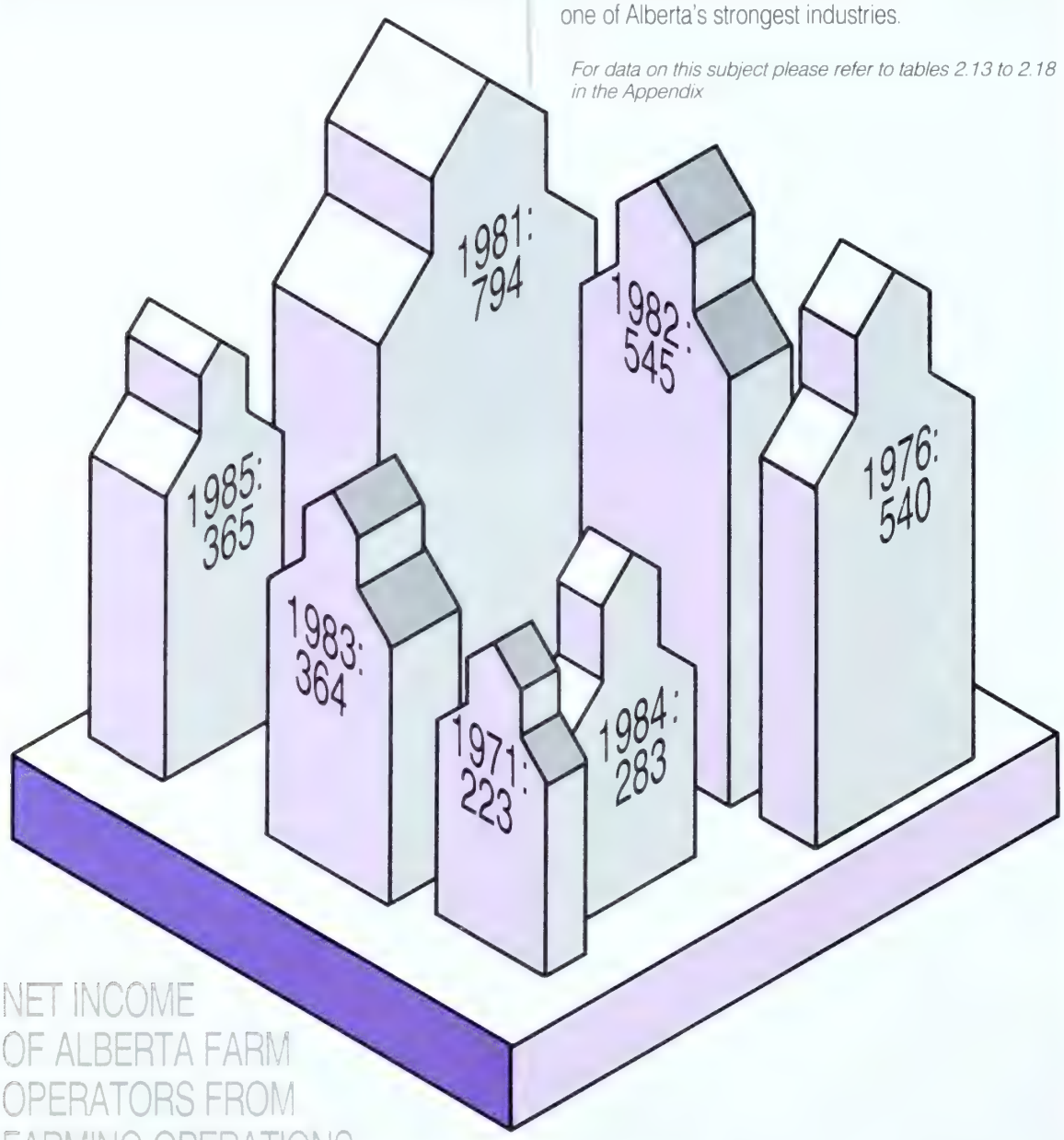
million in the early sixties to nearly $4 billion. Income, as well as expenses, have fluctuated considerably. Receipts from crops have recently exceeded those from livestock, a reflection of higher marketings. Farm cash receipts represent only one part of total farm income. In addition to cash returns from the sale of agricultural products, many farmers supplement their incomes from non-farm sources in the forms of wages, salaries and business and investment incomes. It is estimated that, during recent years, the non-farm income has exceeded $400 million annually.

Farms and ranches are generally thought of as producers rather than consumers, yet each year they spend in excess of $3 billion on goods and services to maintain agricultural production. Total expenses have more than tripled over the past 10 years.

Alberta producers pay over $3 billion annually for physical inputs into crop and livestock production. Expenses average over $50 million on property taxes, $180 million on farm rent, $65 million for electricity and telephones and $200 million for farm labour. Machinery expenses, including fuel, are the largest farm cash expenditure, totalling over $460 million. Alberta farmers annual use of gasoline exceeds 475 million litres, and of diesel fuel 425 million litres.

Agriculture is a dynamic industry and is expected to remain so. A willingness to innovate and a commitment to reinvestment continues to enhance one of Alberta's strongest industries.

For data on this subject please refer to tables 2.13 to 2.18 in the Appendix



NET INCOME OF ALBERTA FARM OPERATORS FROM FARMING OPERATIONS

1971, 1976, 1981, 1985 - MILLIONS OF DOLLARS

Minerals

Alberta is richly endowed with mineral resources and leads all the provinces in value of mineral production. Most valuable are the fossil fuels (discussed in the Energy Resources section), but the province has plenty of other minerals of the non-fuel variety. These are mainly the industrial, or nonmetallic minerals — the basic building blocks of industry. Metallic minerals have little importance in Alberta; few deposits exist and little production has taken place except for small quantities of gold and magnetite.

The industrial minerals exist in variety and in quantity, forming a broad raw material base for Alberta industry. The value of production in 1985 was $1,134.9 million, about 9 per cent of the Canada total. About three quarters of the Alberta production is accounted for by sulphur, one of few minerals valued highly enough for export marketing. Most industrial minerals, owing to their high bulk, low value nature, do not have long distance marketing potential. Thus, except for sulphur, most of the production is consumed within the province.

Alberta's industrial minerals fall into two main use groups: those for construction materials and those for chemical industries. The metallic minerals, though unused as yet, have some potential for future commercial development

Minerals for Construction Materials Industries

Minerals of this group include the materials for cement, ceramics, and building products manufacturing, and the mineral materials (natural or manufactured) used for aggregates. These are sufficiently developed to supply local needs, with some exports of construction materials outside the province.

Cement

One of the most versatile and widely used of all construction materials, portland cement is manufactured from three essential mineral raw materials — limestone, clay, and gypsum

The Alberta cement industry currently has two operating plants, which have recently undergone major expansions to bring the total annual production capacity to 2.6 million tonnes. Production in 1985 was over 1.0 million tonnes valued at $118.8 million. The principal raw material for cement making is limestone,

Alberta accounts for 2/3 of value of mineral production in Canada

about 1.4 tonnes being required per tonne of cement This is supplied from rock quarries in the mountains. Clays are widely available and are obtained from nearby the cement plant sites. However, the gypsum requirements must be imported, mainly from British Columbia.

Limestone

Huge reserves of limestone are found in rock formations exposed along many of the ranges of the Rocky Mountains. These limestone formations underlie the Plains as well, but are generally too deep for exploitation except in the northeast region. Shallow, flat lying beds of limestone are exposed in the vicinity of Fort McMurray.

The best limestone deposits are found on the easternmost ranges of the Rocky Mountains. Development potential exists where the deposits lie adjacent to railway lines, and quarries are operated at four such localities. The two largest, at Cadomin and Exshaw, each currently produce 900,000 tonnes of limestone annually for cement making. From Cadomin the limestone is hauled to a cement plant at Edmonton, a rail distance of 290 kilometres. At Exshaw, the cement plant is situated on the quarry site. Other

quarries in the mountains produce limestone mainly for lime manufacture.

A material that can substitute for limestone in cement making is marl, also widely found in Alberta. However, most deposits are small. One deposit near Clyde, 65 kilometres north of Edmonton, was for a time worked for use in a small-scale cement plant.

Clays and Shales

Clays, and their indurated rock equivalent, shales, are very widespread in Alberta. They are found throughout the Plains in virtually all the bedrock formations and in many of the surficial deposits, and extensively in the mountain region as well. The clays are mostly the low grade, low-alumina variety, suitable only for cement or low-value ceramic use. In cement making, no special grade of clay is needed and manufacturers normally can use whatever lies handiest to the plant.

For ceramics, the best clays are found in the non-marine bedrock formations. They are primarily the "common brick" type, but some intermediate grades such as stoneware clay and fireclay are known in a few localities. These are useful for higher value ware such as sewer pipe, flue liners, facing brick, pottery and stoneware crocks, and for low heat-duty refractories. High grade clays of the type required for whiteware are not found in the province.

The better grades of clay are found mostly in the Cypress Hills area of southeastern Alberta. These are used for structural clay wares in plants at Medicine Hat and Redcliff, and also are blended with imported clays for use in pottery plants in the area. Many of the clays found in this area are of stoneware grade. Other stoneware clays are known in widely scattered deposits in Alberta, notably in the Fort McMurray area underlying the Athabasca Oil Sands. Fireclay is found in association with coal measures in at least one locality — at Wabamun, 60 kilometres west of Edmonton. Surficial clays, despite certain quality deficiencies have had widespread use for brick making in the past, mainly because they were handiest. Currently, a brick plant in Edmonton uses glacial lake clays, quarried at the plant site and also near the town of Athabasca, 130 kilometres north.

The value of ceramic clay products produced in Alberta in 1985 was $7.6 million. Most structural wares are used within the province in the construction industry. Other products are marketed widely in western Canada. Alberta clays and shales also are used for manufacturing lightweight aggregate (see Construction Aggregates), and mineral wool fibre. A dolomitic shale is quarried in the mountains near Exshaw as raw material for a rock wool insulation plant. Production values are not reported for these products.

Gypsum

Alberta's annual consumption of gypsum currently totals about 325,000 tonnes valued at $2.4 million. About 260,000 tonnes are used for gypsum wallboard manufactured at three plants in the province, the remainder for cement manufactured at two cement plants. All the gypsum is imported, mostly from British Columbia. Several gypsum deposits known to exist in Alberta are undeveloped, owing to remote or restricted locations or difficult accessibility.

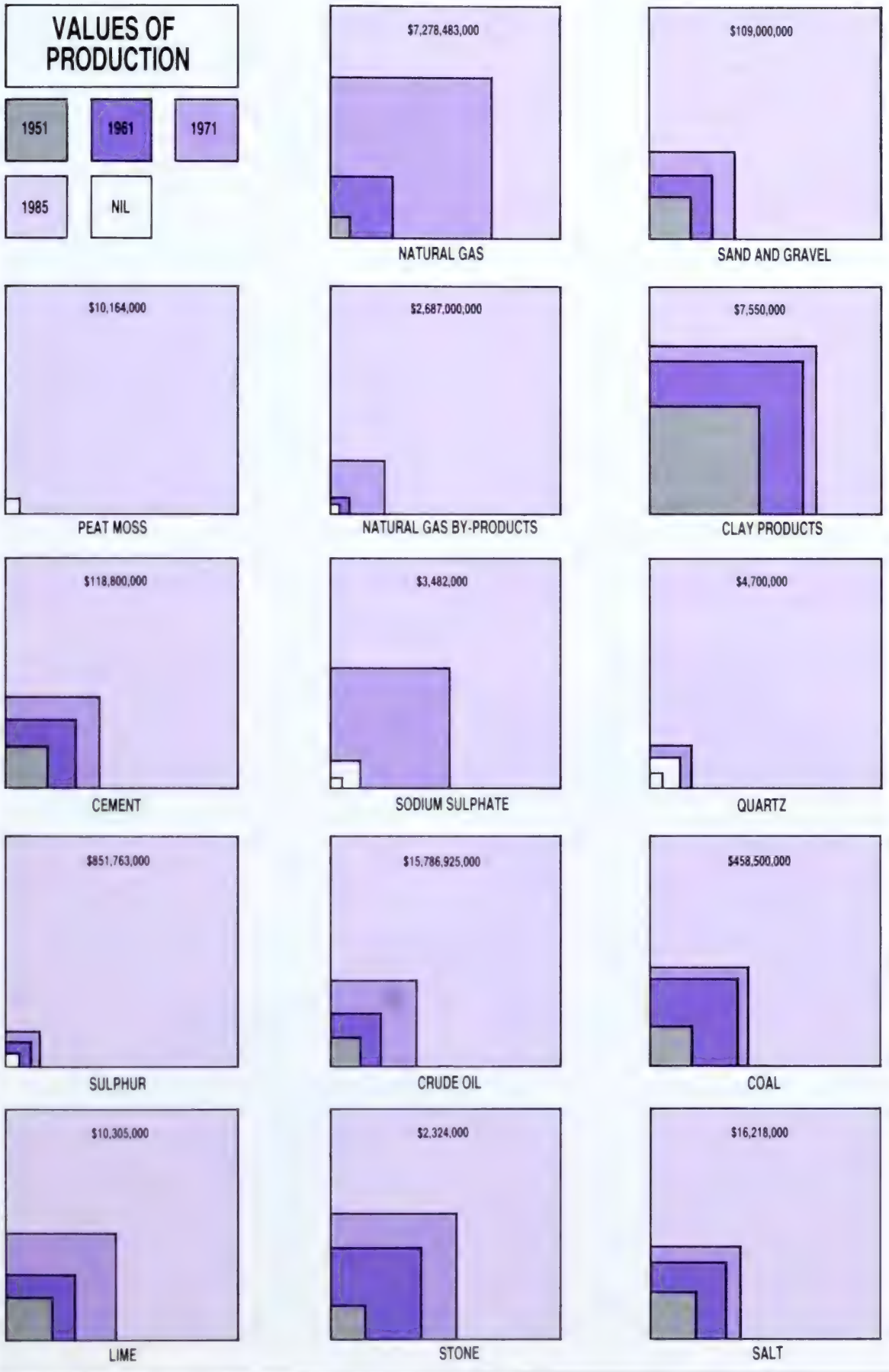
The deposits with best development potential are found in northeastern Alberta. One of these, at Peace Point on the Peace River, lies within Wood Buffalo National Park, but on lands claimed by the Indians. Should these lands eventually convert to Indian Reserve, the deposit — which is of very high grade and extent — could be opened to development. Another deposit, underlying the Athabasca River valley downstream from Fort McMurray, is better located but of lower grade. Development of either deposit will have to await the industrialization expected for this region with further oil sands development.

A factor which may affect future development of gypsum deposits in Alberta is the availability of phosphogypsum, a waste byproduct of the phosphate fertilizer industry. Four fertilizer plants in Alberta have a combined phosphogypsum production of 1.3 million tonnes annually. No use is made of the material at present, due to high processing costs and a potential radiation hazard carried over from the sedimentary phosphate rock (which can contain uranium and radium). However, technology is available from Japan and Europe, which in those countries allows for substitution of phosphogypsum in a full range of gypsum products.

Silica Sand

Consumption of silica sand in Alberta amounts annually to about 100,000 tonnes for glass and glass fibre manufacture and another 100,000 tonnes for hydraulic fracturing, sand blasting, foundries, and a host of minor uses. These silica sand requirements are met by processing and upgrading local dune sands and by imports into the province. Production of local sand was valued at $4.7 million in 1985.

Except for hydraulic fracturing, all of the requirements are now met by silica sand produced in Western Canada, mostly from Selkirk, Manitoba (the Black Island deposit). A few sources of good quality


VALUES OF PRODUCTION
1951
1961
1971
1985
NIL
$7,278,483,000
NATURAL GAS
$109,000,000
SAND AND GRAVEL
$10,164,000
PEAT MOSS
$2,687,000,000
NATURAL GAS BY-PRODUCTS
$7,550,000
CLAY PRODUCTS
$118,800,000
CEMENT
$3,482,000
SODIUM SULPHATE
$4,700,000
QUARTZ
$851,763,000
SULPHUR
$15,786,925,000
CRUDE OIL
$458,500,000
COAL
$10,305,000
LIME
$2,324,000
STONE
$16,218,000
SALT

sand exist in Alberta but are remote from markets and are undeveloped. The best prospective deposits are found along the Peace River in northwestern Alberta, along the Clearwater River in northeastern Alberta, and in the tailings of Athabasca Oil Sands extraction plants.

Dimension Stone

Stone marketed in specified shapes and sizes for building and ornamental purposes includes many types, the most common being granite, sandstone, limestone, and marble. Currently the only dimension stone produced in Alberta is sandstone — a very fine grained flaggy type — from quarries near Canmore in the Rocky Mountains. Production volume is small.

Local stone has been used for various building and ornamental purposes since the turn of the century. For construction of the Legislature Building and other government buildings, the native Paskapoo sandstone was widely utilized. The local dimension stone industry has since declined and is currently very small. It remains important, however, because of current high interest in the preservation and restoration of historically valuable buildings.

Construction Aggregates

Basic materials of construction, aggregates constitute by far the largest tonnage volume of industrial mineral production in Alberta. Although the lowest priced per unit weight, they are exceeded in value of production only by sulphur and cement. Being heavy, bulky, low priced materials, aggregates cannot be marketed beyond distances of approximately 100 kilometres. Consequently, numerous aggregate producing sites are scattered across the province to serve local construction requirements. Sand and gravel comprise the bulk of aggregate production and use. Manufactured lightweight aggregates have specialized application mainly in large urban construction projects. Crushed stone aggregate is not produced in the province.

Alberta has rich resources of sand and gravel, which are developed to the extent of the province's needs, although local shortages are occurring. Production in 1985 was 44.6 million tonnes valued at $109 million. Road building accounts for about two-thirds of the material used, with the balance going for use in concrete and asphalt mixes, dam construction, railway ballast, and a number of minor uses. The sands and gravels are found in a variety of geologic types of deposits, distributed widely throughout the province though not everywhere in accordance with local need. Haulage distance will be an increasingly critical factor in future developments.

Lightweight aggregate production is mostly expanded clays and shales made from local materials. Some imported vermiculite and perlite also is made into expanded aggregates for specialized application in lightweight plaster and insulating concrete. Expandable clays and shales are extensive in Alberta, though many are located too far from urban markets to warrant development. Two plants in the Edmonton area produce expanded aggregate from the surface clay deposits on the plant sites. Another in Calgary uses shales quarried a few kilometres south of the city. Total production from these plants is not reported.

The main application of expanded clay aggregate is in concrete blocks, where the reduced weight results in lower handling and transportation costs. Its use, also, in poured-in-place concrete has increased significantly, particularly in high-rise structures, where the reduced dead load reduces the need for structural steel and allows for greater design flexibility. Additional advantages come from better thermal and acoustical insulation and fire resistance.

Other Minerals: Bentonite and Peat Moss

These are minerals of miscellaneous uses, not strictly for construction materials, but related to that category.

Bentonite is very common in Alberta but pure deposits are rare. Only one deposit is currently worked in the province, near Rosalind along the Battle River, 110 kilometres southeast of Edmonton. The total production of about 12,000 tonnes per year is used mainly in foundries and for lining dams and ponds.

Peat moss bogs are widespread throughout the northern two-thirds of the province. Peat moss is commercially harvested in four localities, the largest production coming from a plant near Evansburg, 80 kilometres west of Edmonton. Total production in 1985 was 50,000 tonnes valued at $10.2 million. Much of the production is exported, mainly for horticultural use.

Minerals for Chemical Industries

Alberta minerals (other than hydrocarbons) that serve as basic raw materials for the chemical industries include; salt, sodium sulphate, sulphur, and limestone. The end users are the wood pulp, fertilizer, and lime industries, in which the end products commonly bear little similarity to the basic minerals as a result of chemical reforming. The products have much higher unit values, even to the extent that some are commodities of world trade.

Salt

The wood pulp industry in Alberta and western Canada provides a major market for the province's output of salt. This salt is not used directly as such, but rather in the form of chloralkali chemicals, including chlorine, sodium hydroxide, and sodium chlorate. However, part of Alberta's salt production is used directly, for purposes ranging from household consumption to ice control on roads

Alberta's salt deposits are of vast extent, underlying almost half the province in beds 60 metres or more in thickness. Currently, there are two salt plants operating: one at Fort Saskatchewan, a few kilometres northeast of Edmonton, where salt is brined from beds 1,900 metres deep for chloralkali chemicals manufacture; and one at Lindberg about 190 kilometres east of Edmonton, where salt for domestic and industrial use is brined from beds 1,100 metres deep. In addition, the salt beds are utilized indirectly at three localities for underground storage of petroleum products, in artificially created caverns. The 1985 salt production was 1.4 million tonnes valued at $16.2 million. Approximately 85 per cent of this production was for chemical use.

Lime, Limestone and Dolomite

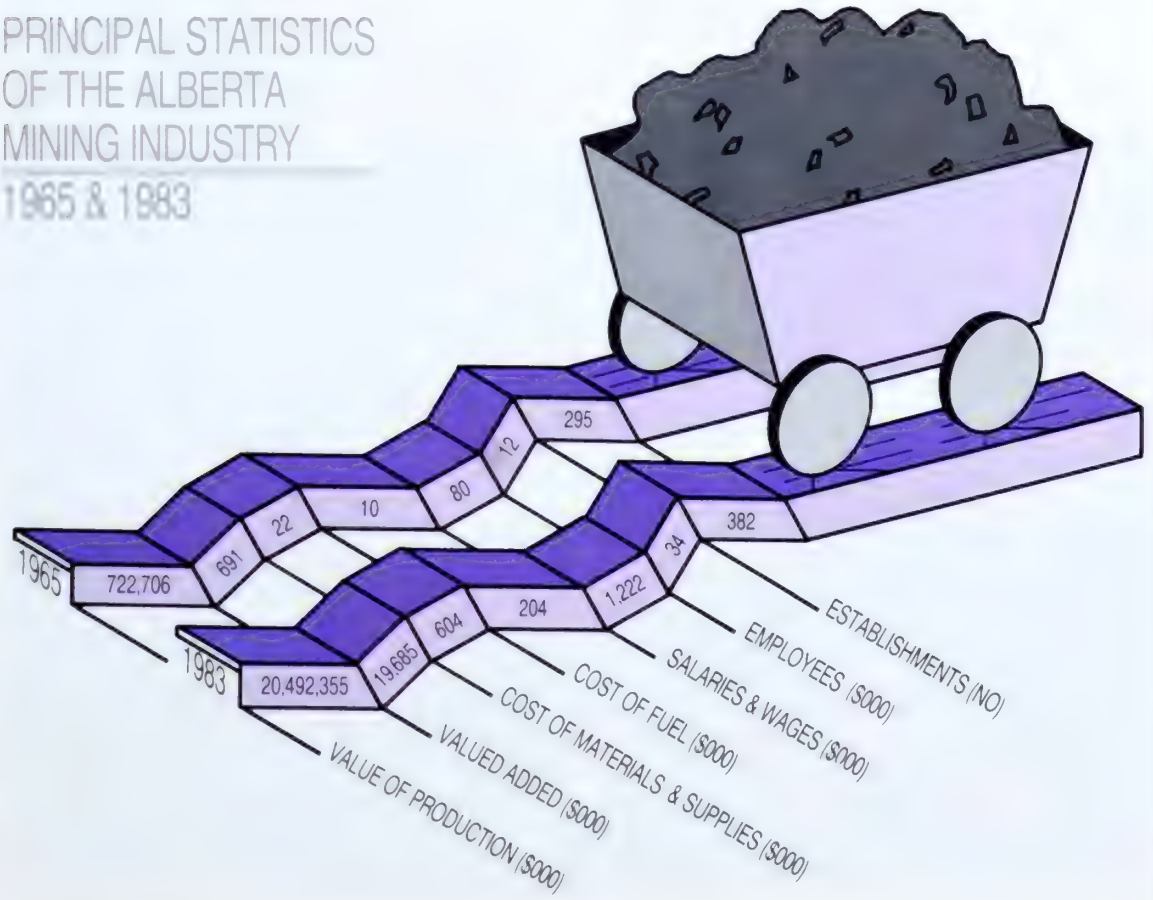
Lime produced in Alberta is the high-calcium type requiring high-purity limestone as the starting raw material. The limestone production for lime making is about 430,000 tonnes yearly, produced from quarries in the Crowsnest Pass and the Bow Valley. Large deposits of dolomite located near the limestones are not utilized, as dolomitic (or magnesian) lime is not currently produced in the province.

The 1985 production of Alberta lime was 147,000 tonnes valued at $10.3 million. This production serves many markets both in the province and outside, the major users being the chemical and metallurgical industries. Pulverized limestone rock is also produced for direct use as a substitute in some lime applications.

Sodium Sulphate

Alberta produces 60,000 tonnes per year of sodium sulphate, about 10 per cent of Canada's output. Production is from a single plant at Metisko Lake about 210 kilometres east of Red Deer. In 1985 the production was valued at $3.5 million. Alberta's

PRINCIPAL STATISTICS OF THE ALBERTA MINING INDUSTRY 1965 & 1983



sodium sulphate is a high purity product used mainly in detergents, though the bulk of Canadian production has its chief use in pulp processing. Other minor uses are in the manufacture of glass, sodium chemicals, pharmaceuticals, fertilizers, and in dyeing, tanning and uranium processing. Reserves in the Metisko Lake deposit are estimated in the order of 3 million tonnes. Several other known deposits in Alberta are too small for economic development at present.

Sulphur

Alberta is a major world producer and exporter of sulphur, having the world's largest production from hydrocarbon sources. Most of it comes as a co-product of natural gas processing, collected in sulphur extraction plants scattered throughout the province. A small percentage is recovered from synthetic crude oil extracted from the Athabasca Oil Sands. In 1985 Alberta sulphur production totalled 8 million tonnes, with sales valued at $852 million. Less than 15 per cent of Alberta sulphur sales are to Canadian industries; the rest is exported.

The wood pulp processing and fertilizer industries are the principal domestic consumers of sulphur. The former utilizes sulphur for the manufacture of bleaching liquor in the kraft process, and for bleaching and cooking liquors in the sulfide process. Its use in the fertilizer industry is for leaching (by sulphuric acid) of phosphate rock for the manufacture of phosphates, and also as a component in the manufacture of some fertilizers (for example, ammonium sulphate). Western Canada's fertilizer industry is based largely in Alberta because of the combination of availability of low-cost sulphur and of natural gas. Much of the production is exported for the large agricultural market in the western United States. Among many lesser applications, sulphur is used in the manufacture of chemicals, rubber products, explosives, plastic and synthetic resins, and in petroleum refining and uranium ore processing.



Sulphur extraction plants are scattered throughout southwest and west-central Alberta wherever sour natural gas is produced. Although the hydrogen sulphide content of sour gas fields ranges as high as 91 per cent, most producing fields contain from one to twenty per cent. The percentages generally increase to the southwest with increasing formation depths and temperatures. Proved recoverable reserves in 1981 were about 130 million tonnes, with an additional 16 million tonnes stockpiled.

Metallic Minerals

Few metallic mineral deposits are known in Alberta. The only production has been small amounts of placer gold, recovered from river gravels and as a by-product of gravel screening and washing operations (in pre-glacial deposits). Production in 1985 was reported as 8,000 grams valued at $117,000.

Potential for major metallic minerals production exists mainly in the Canadian Precambrian Shield in northeastern Alberta, and in the iron ore deposits of the Clear Hills area in northwestern Alberta. The Precambrian Shield provides a favourable geological setting for metallic mineralization. Uranium showings have been found in the area adjacent to Lake Athabasca, and uranium exploration on the Shield is currently active. The Clear Hills iron deposits, with 180 million tonnes of proven strippable ore, constitute the largest potential source of iron ore in the four western provinces. The development is still awaiting an economically viable beneficiating and smelting process. The low grade (35 per cent Fe) and complex metallurgy of the ore have barred development to date.

Magnesium-rich brines exist in several of Alberta's subsurface reservoir formations. These brines have magnesium concentrations eight to ten times that of seawater, the source of most of North America's magnesium metal. They may have an economic potential for magnesium metal extraction by the Dow (electrolytic) process.

Heavy minerals found in trace amounts in the Athabasca Oil Sands are rich in titanium minerals and zircon. They become concentrated in the secondary tailings stream during oil sands processing, to a level where the tailings constitute a potential source of titanium and zirconium metals. Oil sand processing also effects a concentration of vanadium and nickel in the residual bitumen coke. It may become feasible to recover these metals from the coke ash, where the coke is burned as fuel.

For data on this subject please refer to tables 2.20 to 2.22 in the Appendix

Engineering and Construction

The capability of the engineering and construction industry to design and construct industrial, commercial, and institutional plants, facilities and buildings is one of Alberta's great strengths. The fortunes of the industry reflect trends in general economic activity in the province. Between 1971 and 1981 the value of construction rose from $1.8 billion to $14.5 billion: by 1984 it sagged to $9.5 billion. The forecast for 1986 was again up to $11.8 billion. The industry had set spending records annually until 1981 due to rapidly expanding markets for office space and residential accommodations, and to forecasts of petroleum related expansions of industrial installations These resulted in gluts of both office space and residential accommodations when the forecasts failed to materialize and the national economy faltered. The numbers of dwelling starts fell off drastically from annual rates of around 30,000 per annum to a low of just over 5,000 in 1984. The values of building permits decreased from a high of over $5 billion to below $2 billion. Employment in the construction industry decreased by one half -- from 150 thousand to around 75 thousand.

A measure of the confidence of the business community in the economic future of the province is the fact that engineering construction volume held up remarkably well. Investment expenditures on gas and oil related facilities, on electric power facilities, and on railways, telephone and telegraph facilities, all continued at relatively high levels. The proportion of the engineering construction expenditures increased from 55 percent to over 65 percent of total construction expenditures.

Apart from street, waterworks and sewage system construction, most engineering construction work takes place away from the main population concentrations. Building construction, by dollar volume, is mostly in the vicinity of the cities. Over two-thirds is in or near Calgary and Edmonton.

Construction volumes should not be compared solely on the basis of building permit values. The basic criteria for assigning values to the permits differ both among the issuing authorities and over time. Some municipal authorities do not require or issue permits, and not all types of construction require permits.

Industrial building, in particular, tends to be excluded from permit requirements by definition or practice. Building codes and safety standards, on the other hand, are fairly consistent.

For data on this subject please refer to tables 2.23 to 2.28 in the Appendix



Forestry

Fifty-five per cent of Alberta is covered by forest, constituting an approximate area of 360,000 square kilometres. This is publicly-owned forest and which is managed primarily for forestry. The forests of these lands contain nearly 2.7 billion cubic metres of wood material. Alberta ranks fourth among Canadian provinces both in terms of merchantable timber volume and productive forest area.

Of the forest area, approximately 198,000 square kilometres are classified as timbered with a further 18,000 square kilometres regarded as suitable for timber after they have been restocked. An area of 142,000 square kilometres is classified as unsuitable terrain; it includes muskeg and bushland areas. The major portion of the forest land is in the Boreal Forest Region. There are also Subalpine and Montane Forest Regions on the eastern slopes of the Rocky Mountains.

Of the 198,000 square kilometres of timbered forest land, approximately 45 per cent is covered with coniferous, 35 per cent with deciduous, and 20 per cent with mixed coniferous and decidous trees, Spruce, pine, fir, poplar, and birch are the predominant species.

Forest-based industries account for approximately 7 per cent of the value of manufacturing shipments in the province and for 11% of the value added for manufacturing. Coniferous timber quota operations have an authorized annual cut of approximately 4.5 million cubic metres primarily for the production of lumber, plywood, and round timbers. In addition, Forest Management Agreements have been established allowing an annual cut of about 4.3 million cubic metres. There is room for expanded forest production, including major pulp mills and sawmilling facilities, while maintaining the net volume of timber growth. The present annual cut of trees is in the order of 6 million cubic metres coniferous, and 500,000 cubic metres deciduous.

The annual allowable cut is over 15 million cubic metres coniferous, and over 12 million cubic metres deciduous.

Over the past two decades, there has been a significant change in the proportions of forestry production. Prior to 1956, lumber manufacture accounted for 85 per cent by volume of total forest production. In the mid 1970's lumber accounted for about 60 per cent of the total, due to an increase in the production of pulpwood and round timber. This shift was partly caused by the commencement of operations of large pulp mills at Hinton in 1956 and near Grande Prairie in 1973.

55% of Alberta is forested

Now lumber and plywood account for approximately 85 per cent of the total timber being harvested in the province. This is as a result of the pulp mills reducing their demand for roundwood by substituting wood chip residues from lumber production. Wood chip production has increased 360% in the last ten years.

The large new capital facilities being built reflect the increasing modernization of the Alberta forest industry and are considered a mainstay for the maintenance of a favourable competitive position in world lumber markets.

New technological developments are also having a large impact on the structure of Alberta forest industries. There are three oriented strand board/waferboard mills operating or under construction. The first medium density fibreboard plant in Canada is now in production; a chemi-thermo mechanical pulpmill will begin operations in 1988.

A vital aspect of forest management is that of reforestation. With the implementation of a sustained yield policy, the task of reforestation was taken on by government and the timber industry. Regeneration requirements are set and surveys regularly conducted on harvested areas. Minimum stocking standards are enforced.

The Pine Ridge Forest Nursery, constructed through funding from the Alberta Heritage Savings Trust Fund, will ultimately supply 18 million bareroot and 20 million container stock annually for Alberta industry and government reforestation and afforestation programs. The facility is projected to sustain an adequate supply of seedlings for these programs for at least the next decade.

The Crown is Alberta's principal landowner. Except for carefully selected areas which are suitable for agriculture, the provincial government retains title to these lands and only grants rights (such as mineral or timber) to the private sector under specified terms and conditions. Timber harvesting authorization is obtained by acquiring a Forest Management Agreement, Timber Quota or Timber Permit.



About 332,000 square kilometres of forest area are now subdivided into over 100 Forest Management Units in ten Forest Administration Regions. Based on current inventories (together with recognition of multiple forest uses), an annual allowable cut and cut progression schedule is developed under a timber management plan for each management unit to ensure a sustained supply of forest products from that unit.

Prospective Forest Management Areas, called Timber Development Areas, are publicly advertised and company development proposals invited. Company representatives are required to outline their proposals at public hearings to assure those present that sound forest management practices will be followed and that environmental and social factors will be considered. The selection of the successful company is made by the Executive Council of the Province of Alberta

The Alberta Forest Service then negotiates a Forest Management Agreement with the company, with terms and conditions based primarily on the company submission made at the public hearings. Such an Agreement is entered into when the applicant agrees to construct a pulpmill, plywood plant or some other capital facility. Each Agreement provides the holder with harvesting rights over extensive areas of commercial timber at specified dues, rates, and under specific conditions. The land within a Forest Management Area must be managed on a sustained yield basis to ensure continued production. All Agreements require the holder to conduct inventories, develop management and annual operating plans, and reforest all cutover areas. The Forest Management Agreement negotiated with the company is then approved by Cabinet.

Most other commercial timber operations are conducted under the authority of timber quotas. Where timber is available for harvesting, a quota may be authorized and offered for competitive sale at public auction. In order to provide security to tenure, quotas are generally established for twenty-year periods with the volume of production regulated over five-year periods. Actual harvesting is authorized by issuance of successive timber licences. A licence is issued once a quota holder has submitted his performance deposit, paid assessed fees and costs associated with establishment of the quota and licensing, and complied with all regulations.

Commercial Timber Permits (C.T.P.'s) may be offered by competitive auction sale where a surplus annual allowable cut is present or has accumulated (usually as a result of an undercut by a quota holder) in a management unit. When there is reason to require prompt removal of timber if it is dead, diseased, damaged, or is in a development or research area, a C.T.P. may be issued without competition. Generally, C.T.P.'s are held by small operators not desiring or

unable to obtain a quota in a Forest Management Unit. These permits are issued for a short term, usually one to three years.

Local Timber Permits (L.T.P.'s) were primarily established to provide local residents with the opportunity to harvest timber for their own use, or for sale, if approved for the particular Forest Management Unit. Volume of timber harvested is limited and permits are restricted to a one-year term.

These forest policies are designed to ensure that Alberta will have a viable forest industry over the long term. They reflect a determination to maintain the benefits that accrue to the province from the natural beauty, wildlife, and recreational potential of the forests.

For data on this subject please refer to tables 2.29 to 2.34 in the Appendix

Commercial Fishing

Alberta has 225 lakes in which commercial fishing is permitted; 93 lakes were fished commercially during the 1985/1986 fiscal year. The majority of the commercial catch is landed during the winter months when prices for most types of fish are higher.

The province is divided into eight commercial fishing zones for licensing purposes. In 1983 a freeze on new entry into commercial fishing was established as a first step in the development of a limited access commercial fishery. Prior to 1983 Alberta commercial fisheries were treated as open access fisheries. In 1985 there were about 3,000 people eligible for commercial fishing licences, and 2,313 fisherman participated in commercial fishing during the 1985/86 fishing season.

The mainstay of the Alberta commercial fishery is whitefish, Northern pike, tullibee and perch are also caught in much smaller quantities. Walleye and lake trout appear as small parts of the total catch, because of their limited supply in the province and allocation policies that emphasize the importance of these species as sportfish.

So-called rough fish are taken incidentally. These include lower grade tullibee, burbot and suckers. Some tullibee are sold as mink feed, but this industry no longer demands a significant part of the potential catch. There is a demand for a small amount of burbot, but this fishery is held back by low prices offered to fisherman. There is no market demand for suckers in Alberta at the present time.

The government of Alberta currently offers some freight assistance to fishermen operating in the remote northern areas of the province as well as some



assistance to cover the costs of shipping fish to the Freshwater Fish Marketing Corporation in Winnipeg.

There are ten registered fish packing establishments in Alberta. These are licensed by the Freshwater Fish Marketing Corporation which buys all fish destined for export from the province. Currently this is approximately 60% of the total catch, and is composed primarily of whitefish and northern pike. The remainder of the catch is sold in Alberta by the fisherman directly to the consumer. Special dealers may sell to retail outlets within the province and directly to the consumer as well.

For data on this subject please refer to table 2.35 in the Appendix

Trapping

Trapping has long been an integral part and desirable tool of wildlife management as well as an intrinsic part of Canadian heritage. Some Albertans are still dependent upon the wild fur industry for their livelihood, for either a sole or supplementary income. Throughout the settled parts of Alberta, the trapping of wild fur provides an additional income for the part-time trapper as well as serving as a means of managing problem wildlife species

Wildlife fur production has remained fairly stable over the years. From time to time, increases in numbers and species of animals harvested indicate increasing or peaking population levels of these species. In Alberta, no species of fur-bearing animal is in danger of extinction by trapping. Changing demands by the public and the manufacturing and design industries cause corresponding changes in the value of furs. Changing trends in fashion requirements must be catered to by fur dealers, fur auctions and brokers.

During the 1985-86 season there were 2,951 registered trappers actively engaged in trapping on Crown land. Resident trappers purchased 3,973 licences to trap on small parcels of privately owned land. During the 1980 season the total value of raw fur harvested amounted to $15.6 million, a peak year.

For data on this subject please refer to table 2.36 in the Appendix

Tourism

Tourism is an important industry in Alberta, contributing numerous economic and social benefits. These include business investment opportunities, employment for large numbers of people, and the provision of a variety of recreational and cultural amenities to be enjoyed by residents and visitors.

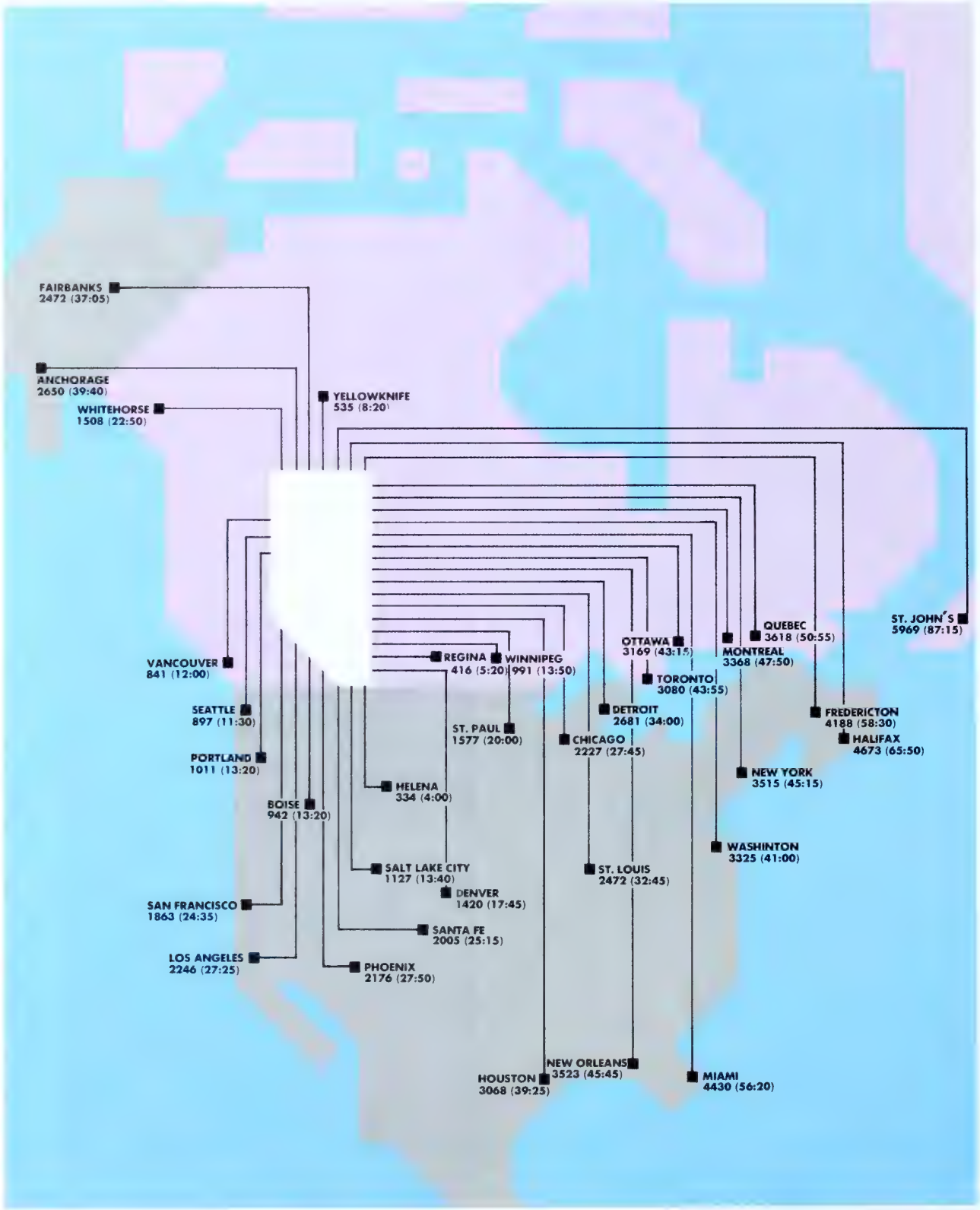
The tourist industry is comprised of many businesses, large and small, which serve the needs of the travelling public. Airlines, hotels, restaurants, taxicabs, ski resorts, gas stations, grocery stores — these are just a few of the businesses that make up the industry. As an indication of the number of businesses involved in Alberta, in 1984 there were about 1,000 hotels and motels, 2,900 food service outlets, and about 1,200 gasoline service stations. When the full range of businesses which serve the tourist is considered, the size and diversity of the industry can be appreciated.

Because it involves so many businesses throughout the province, tourism plays a major role in the Alberta economy. In 1985 it is estimated the industry generated almost $2.1 billion in revenues and

Tyrell Museum of Palaeontology a rising star, 2/3 of visitors non Albertans

Alberta in North America

DISTANCES IN KILOMETRES AND AVERAGE DRIVING TIMES FROM PRINICIPAL CENTRES IN NORTH AMERICA TO THE ALBERTA BORDER. (AVERAGE DRIVING TIMES ARE IN BRACKETS)





supported the equivalent of 74,000 full time jobs. The revenue figure is triple that of 1975 when revenues were $665 million. For the decade, revenues grew at an average rate of 12 per cent annually. Real growth for the period was 3% annually.

Albertans, as might be expected, are the largest market, accounting in 1985 for just over 48 percent of total tourist revenues, and 62 percent of the total of 14.0 million tourist visits (where the visit involved at least one night away from home). Residents of other Canadian provinces accounted for 36% of total revenues and 30% of total visits; U.S. residents for 11% of revenues and 6% of visits, and other foreign visitors, mainly from western Europe, for the remaining 4% of revenues and 2% of visits

Alberta's most important non-resident markets, in terms of total visitors, are: Canada - British Columbia, Saskatchewan, Ontario; U.S. - California, Washington, Montana, Texas; foreign - United Kingdom, Japan, West Germany

Alberta offers a multitude of things for the visitors to see and do. Some of the more noteworthy attractions: the spectacular Rocky Mountains, which in winter offer excellent skiing (Alberta has three Rocky Mountain National Parks: Banff, Jasper, and Waterton); Dinosaur Provincial Park, a World Heritage site, with its badlands' formations and rich deposits of dinosaur fossils; the beauty and solitude of Alberta's north country, with its excellent fishing; and the two major cities, Calgary and Edmonton, each a dynamic, cosmopolitan centre with its own unique urban attractions. For the vacationer with a sense of adventure, Alberta offers almost everything: trailrides on horseback, fly-in-fishing at remote lakes, river rafting, even winter dogsled tours

Alberta is becoming known for major events. In addition to the annual Calgary Stampede and Edmonton Klondike Days, in recent years Alberta has hosted two major international events, the Commonwealth Games, (Edmonton, 1978) and the World University Games (Edmonton, 1983). The province is now looking forward to hosting its most important international event ever -- the XV Olympic Winter Games in Calgary in 1988.

For data on this subject please refer to tables 2.37 and 2.38 in the Appendix

Research and Development

Research and development (R&D) is defined as creative work undertaken on a systematic basis toward the acquisition and application of new scientific and technological knowledge. Included is work both in the natural sciences and engineering, and the social sciences and humanities.

"High technology", encompasses the leading edges of advanced research and the advanced and exciting developments in all fields from agriculture and mining to manufacturing and medical treatments and explorations of the universe. Current examples are genetic engineering, developments in micro-electronics, data processing and transmission, and the planning and repairing of satellites in earth orbit.

Research funding has always had a high priority for the Alberta government. On a per capita basis, the government funded research and development in 1984-85 at approximately three times the level of any other Canadian province; and in total spent more than any other province. While other provinces have increased research spending in recent years, Alberta continues to be among the leaders in per capita R&D funding.

In 1984-85 the Alberta Government spent $155 million on R&D and $85 million on related scientific activities for a total of $240 million on "scientific activities". The $240 million was spent as follows: energy and fuels 34 per cent, industrial and economic development 22 per cent, social development and related areas 19 per cent, health 11 per cent, environment 9 per cent, advancement of science 4 per cent, and transportation and communication 2 per cent. Total private and public expenditures for 1984-85 in Alberta amounted to $561 million. Governments funded $374 million, the private sector $136 million and "others" $51 million. This research was performed by: industry $232 million, universities $188 million, Federal Government $66 million, Alberta Government $56 million and others $19 million. Of the $561 million total expenditure, $61 million was spent

on social services and humanities research and $500 million on natural sciences, medical and engineering research.

The first formal R&D in Alberta began in the mid 1890's at Brooks with the founding of an experimental farm by the CPR. This event was followed by the creation of the Lethbridge Experimental Farm by Agriculture Canada in the early 1900's. The University of Alberta was founded in 1907 and the Alberta Research Council (ARC) early in 1921. The ARC is the oldest and largest provincial research organization in Canada

University research expanded slowly during the 1920's to 1940's, and then increased rapidly from the 1960's to today. The University of Calgary was founded in 1963, and was immediately strongly research oriented

The Defence Research Establishment at Suffield came into being in the 1940's, but it was really in the 1950's that a major expansion of R&D institutions came about. The ARC moved into new facilities in 1955, and industrial laboratories at ESSO, CIL, Sherritt-Gordon, Dow and Celanese were founded

In the 1960's the Department of Agriculture started their own in-house R&D activities, while the Department of Energy began funding R&D at the ARC and in the universities. Among its own programs started later, the Conservation and Renewable Energy Research and Development program is designed to promote research, development and demonstration of new technologies which show a potential for reducing energy consumption and costs while maintaining or improving existing levels of production or present environments. A Reclamation Research Technical Advisory Committee coordinates provincial government funding for land reclamation research. In conjunction with industry participants it identifies means of combining mineral development with agriculture, forestry, wildlife habitat and watershed protection.

In the 1970's Alberta Environment began to perform its own R&D, as well as R&D funding to universities and the private sector. The Syncrude Ltd., Research Laboratory was also started, but the most important developments were the creation of the Alberta Oil Sands Technology and Research Authority (AOSTRA) in 1975 to fund research by industry, universities and the ARC on oil sands, and tertiary recovery of conventional crude oil; and the creation of the Alberta Heritage Foundation for Medical Research (AHFMR) in 1979 to fund undirected peer-review medical and related research in Alberta's universities and hospitals. Together the Foundation and Alberta universities have recruited scientists in most major disciplines with many gaining international recognition. Presently, some 700 scientists, fellows and students are carrying out work with the Foundation's support

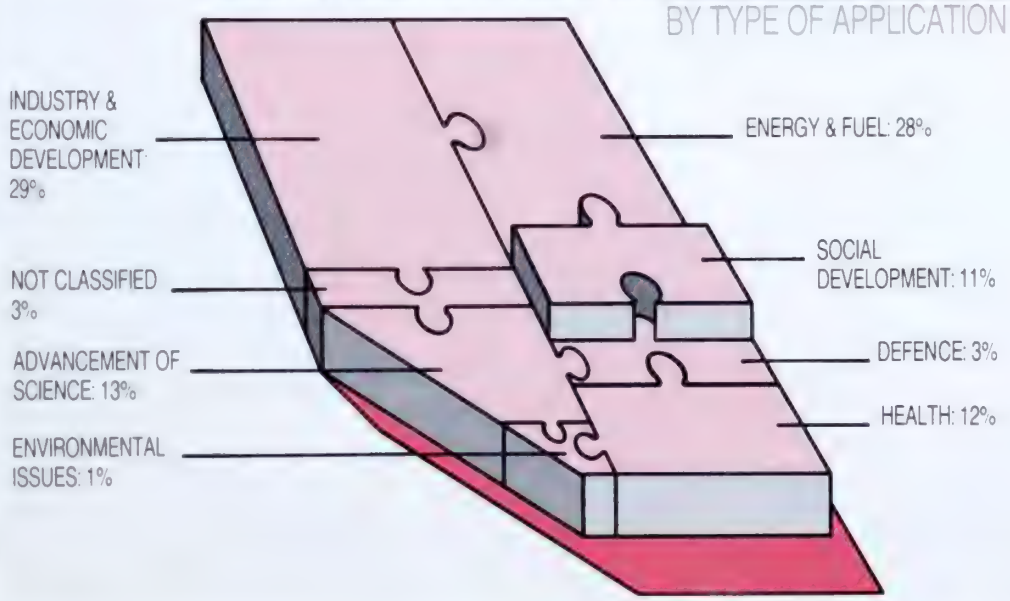
Further major expansion in industrial research occurred in the 1980's with the establishment of R&D facilities by Bell Northern Research, Husky-Nova, Novatel and Shell Resources, amongst the larger facilities

During this period the Alberta Government initiated essentially three programs - R&D infrastructure development, provision of financial institutions and direct financial support.

The commitment to promote further diversification of the provincial economy, by focusing on the development and commercialization of advanced

ALBERTA RESEARCH AND DEVELOPMENT EXPENDITURES $361,000,000

BY TYPE OF APPLICATION -1984 1985



technologies, was given a new impetus with the formation of the Alberta Department of Technology, Research and Telecommunications in 1986.

A number of new institutions have been created in order to provide infrastructure services to companies and/or to better transfer technology from the universities to the private sector. These include: the Electronic Test Centre which provides testing and certification of electronics products; the Electronic Industry Information System from which Alberta manufacturers can access the most up-to-date technical and design information available; the Alberta Microelectronic Centre providing integrated circuit design, development and manufacture; the Alberta Laser Institute to assist industry development and implement laser systems to enhance productivity and competitiveness; use of supercomputing technology at the Alberta Supercomputer Centre, the Alberta Telecommunications Research Centre which will carry out pooled research projects with small "home grown" and large multinational corporations in the area of telecommunications; and the Centre for Frontier Engineering Research (CFER) which conducts research related to materials and fabrication processes used by the energy and construction industries in cold climates.

Research and development parks were established, with government assistance, by the Calgary Research and Development Authority and the Edmonton Research and Development Park Authority to accommodate the needs of the advanced technology industry. As well, spacious new facilities for the Alberta Research Council were completed in 1986.

The emphasis on new products and processes in Alberta in recent years has created strong demand for responsive sources of financial assistance which can help turn good ideas into viable businesses. Sensitive to this need the government has launched a variety of financial initiatives designed to encourage the success of promising, well-managed businesses with innovative products and services to sell.

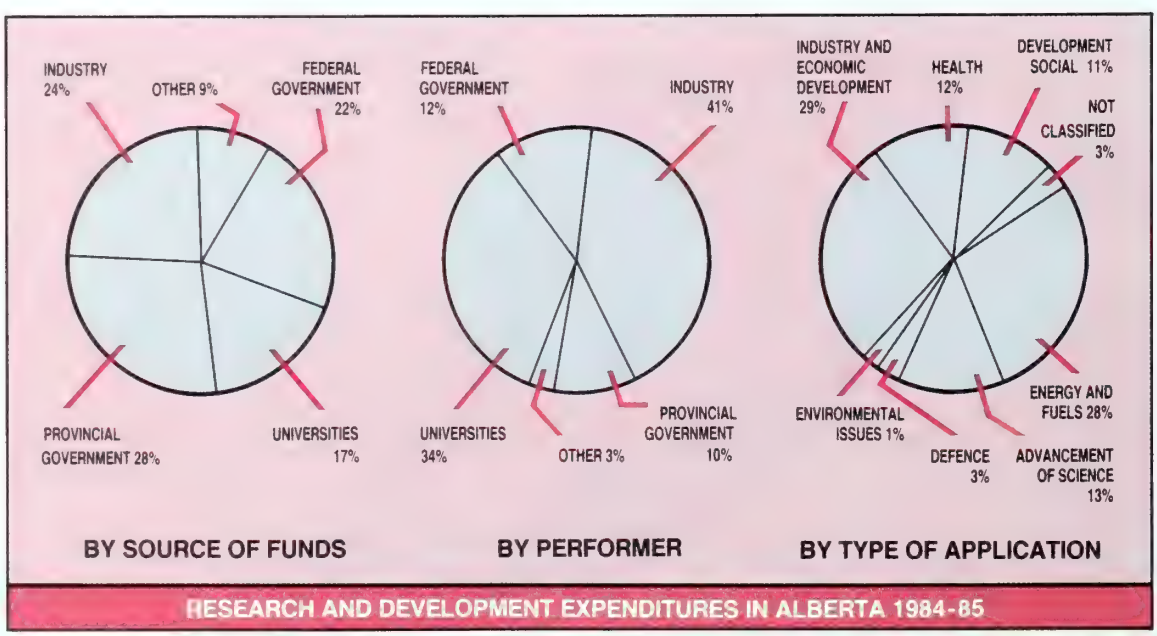
The Alberta Opportunity Company had been created in the 1970's followed by Vencap Equities, the Small Business Equity Corporation, the Alberta Stock Savings Plan and Alta-Can Telecom Inc., in the 1980's.

Direct financial support has also been given, in a number of cases, to various companies. This often involves the purchase of preferred shares, but may also involve loans or loan guarantees. As well, the Alberta Research Council has participated with companies in a number of joint venture R&D projects.

In addition to the institutions mentioned above, which strengthen university/industry cooperation, Alberta's universities have also benefitted from generous operating grants, substantial ($28 million in 1984-85) R&D contracts from the Alberta Government and, since 1980, a system of matching funds from Alberta Advanced Education for donations and grants from non-government sources (some of which were for R&D purposes).

The Federal Government has been involved in providing funds to Alberta's universities through the granting councils, and by direct contracting. Company R&D has benefitted from the Industrial Research Assistance Program, Industrial Research and Development agreements (jointly with Alberta) under the economic and Regional Development Agreements.

Since the formation of the Province in 1905, the Government has consistently supported R&D activity at a high level. This support, and committment is continuing today and into the future.



RESEARCH AND DEVELOPMENT EXPENDITURES IN ALBERTA 1984-85



Energy Resources



Alberta has been accurately described as Canada's energy province. Large areas are underlain by thick beds of ancient sedimentary rock which contain deposits of oil, natural gas, bitumen, and coal. In addition, swift rivers flowing to the Arctic Ocean as well as eastward to the Hudson Bay have substantial potential as sources of hydroelectric energy. This section presents details of the development of these important resources.

In recent decades, conventional crude oil and natural gas have been the most significant sources of fossil fuel energy. Coal and the oil sands, however, comprise by far the largest potential sources. Accompanying tables contain information highlighting the extent of Alberta's endowment of these resources.

Remaining established reserves of 648 m^3 of conventional crude oil in Alberta comprised some 71 per cent of the Canadian total at year end 1985.

Alberta's remaining established reserves of natural gas, 1768 billion m^3, comprised 65 per cent of Canadian reserves in 1985.

These resources are of substantial importance to both Alberta and Canada.

Interest is being shown in coal and oil sands reserves because of past increases in international crude oil prices, and because of the probability of not meeting future Canadian energy requirements from domestic conventional petroleum sources. Alberta's coal reserves are not as easily defined as reserves of crude oil and natural gas, but they comprise the largest source of fossil-fuel energy by a wide margin. The

development of Alberta oil sands has received worldwide attention. Major commercial oil sands plants to extract oil from the sands began operations in 1967 and 1978, and an expansion of the first plant began in 1983

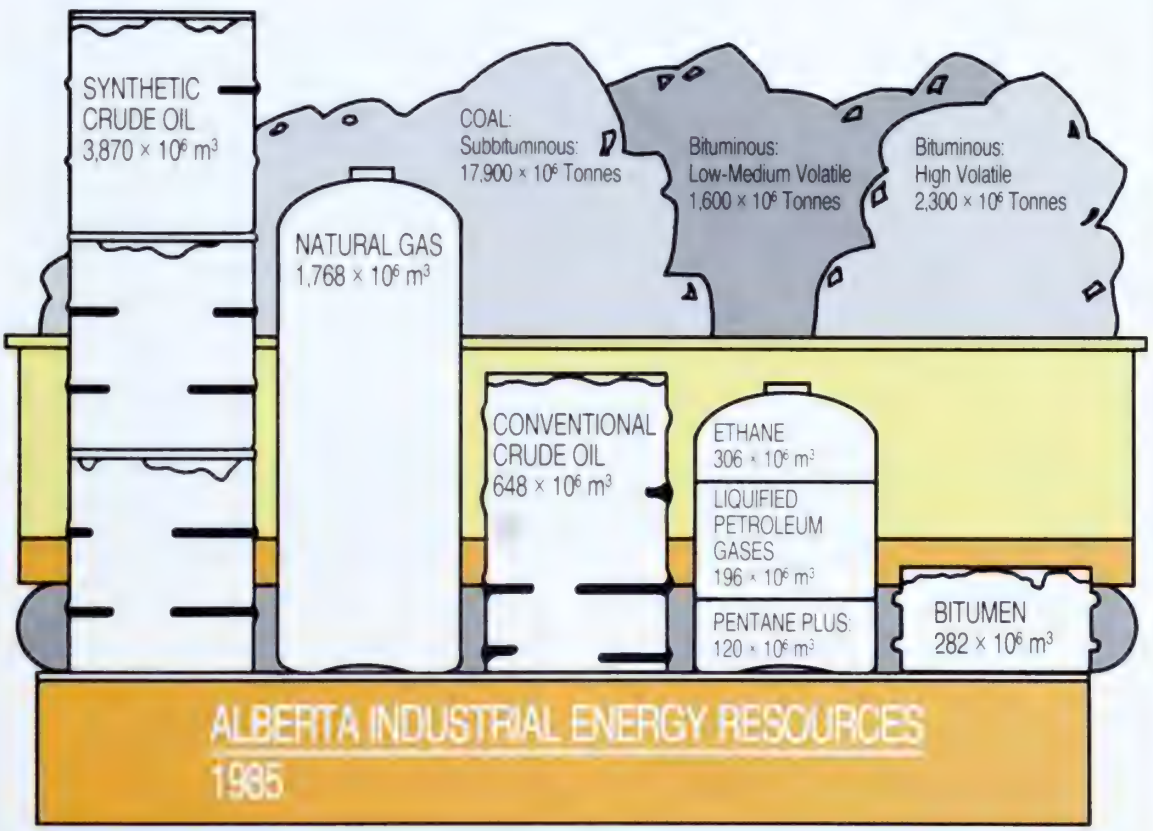
In addition to its fossil fuel reserves, Alberta also has a significant reserve of non-depleting hydro energy. The ultimately developable hydroelectric energy potential is estimated to be approximately 62,000 gigawatt hours a year. The major portion of this potential reserve is contained in the Athabasca, Peace, and Slave Rivers. To date, only about three per cent of the total hydro reserves have been developed, entirely on the Bow and North Saskatchwan River systems. In 1985 some 13 per cent of Alberta's electrical generating capacity was based on hydro development and generated some 5 per cent of the electric energy required

For data on this subject please refer to table 4.2 in the Appendix

Petroleum and Natural Gas

Since the early part of this century the oil and gas industry has been a prime factor in Alberta's economic growth.

The first commercial gas well in Alberta was drilled at Medicine Hat in 1890, and the first commercial natural gas liquids production began in the Turner Valley area in 1914. Heavy crude oil was first commercially extracted near Wainwright in 1925 Important discoveries of heavy oil were made later at Vermilion and Lloydminster. In 1932, a major discovery of light crude oil was made in the Turner Valley gas field.





Turner Valley subsequently developed into a major area of oil and gas production, and Calgary emerged as the principal location for the Canadian petroleum industry. The discovery of oil near Leduc in 1947 launched modern oil and gas development.

The Petroleum and Natural Gas Conservation Board was established in 1938 to enforce conservation measures and eliminate the wasteful flaring of natural gas occurring in the Turner Valley field. Now called the Energy Resources Conservation Board, it is the regulatory body responsible for ensuring that all energy resources are developed in an orderly, efficient, and safe manner and that environmental standards are met.

The other major regulatory body in the Alberta energy industry is the Alberta Petroleum Marketing Commission. It was established in 1980 to act as an agent for the Crown in the buying and reselling of petroleum, pentanes plus, and natural gas produced in Alberta. The A.P.M.C. is also responsible for monitoring the pricing system and for determining the Alberta cost of service for pipelines within the province.

Oil and gas pipelines in Alberta extend to the east, south, and west supplying central Canada, part of British Columbia, and a substantial portion of the U.S. with petroleum liquids and natural gas. The Interprovincial Pipeline was completed in 1950 to transport crude oil from Edmonton to Superior, Wisconsin. It was extended to Sarnia, Ontario in 1953; to Toronto, Ontario in 1957; and to Montreal, Quebec in 1976. The TransCanada Pipeline was completed in 1958 and now supplies gas markets as far east as Montreal. The TransMountain Pipeline and the Westcoast Transmission Pipeline were completed in 1953 and 1957 respectively, to supply oil and gas to the west coast region of Canada.

The TransMountain Pipeline was extended in 1955 to supply oil to the Puget Sound area of the northwestern U.S. The Westcoast line transports gas mainly to British Columbia and the northwestern U.S. By 1961, the Alberta Gas Trunk Line Company Limited (now called NOVA, An Alberta Corporation) was also exporting gas south to the northwestern U.S. and California via the Crowsnest Pass and connecting pipelines. The movements of oil and gas within, to, and from Canada are illustrated on the accompanying maps.

Alberta is the major force in Canada's oil and gas industry. In 1985 Alberta supplied about 206,000 cubic metres a day, or 85 per cent of Canada's requirements, of crude oil and equivalent (conventional, synthetic and experimental crude oil, condensate and pentanes plus). About 50 per cent of Alberta's 1985 production of crude oil and equivalent was delivered to other Canadian provinces, while the U.S. and offshore markets received 27 per cent. Daily exports by Canada to the U.S. and offshore markets averaged 56,400 cubic metres of crude oil and equivalent. Canadian imports totalled 14.6 million cubic metres for the year.

Alberta supplies 85% of Canada's needs.



Production of conventional crude oil in 1985 averaged 156,000 cubic metres per day. The net increase of 7 million cubic metres brought remaining established reserves to 648 million cubic metres by the end of 1985. Alberta conventional crude oil reserves constitute approximately 68 per cent of Canadian reserves

Exploration and development activity in 1985 was up significantly over 1984. Of the 7,588 wells drilled during 1985 exploratory drilling accounted for 2,234 wells and development drilling accounts for the remaining 5,354 wells. These were 15 per cent lower, and 21 per cent higher respectively, than the exploratory and development well completions in 1980, the last time when over 7,000 wells were drilled.

Both exploratory and development drilling for oil have increased whereas both have fallen for natural gas. The decline in natural gas drilling has been largely due to uncertainties in the U.S. export market. Overall activity in 1986 was down substantially as a result of depressed oil and gas prices

Alberta production of marketable natural gas in 1985 was 74,009 million cubic metres, 88 per cent of

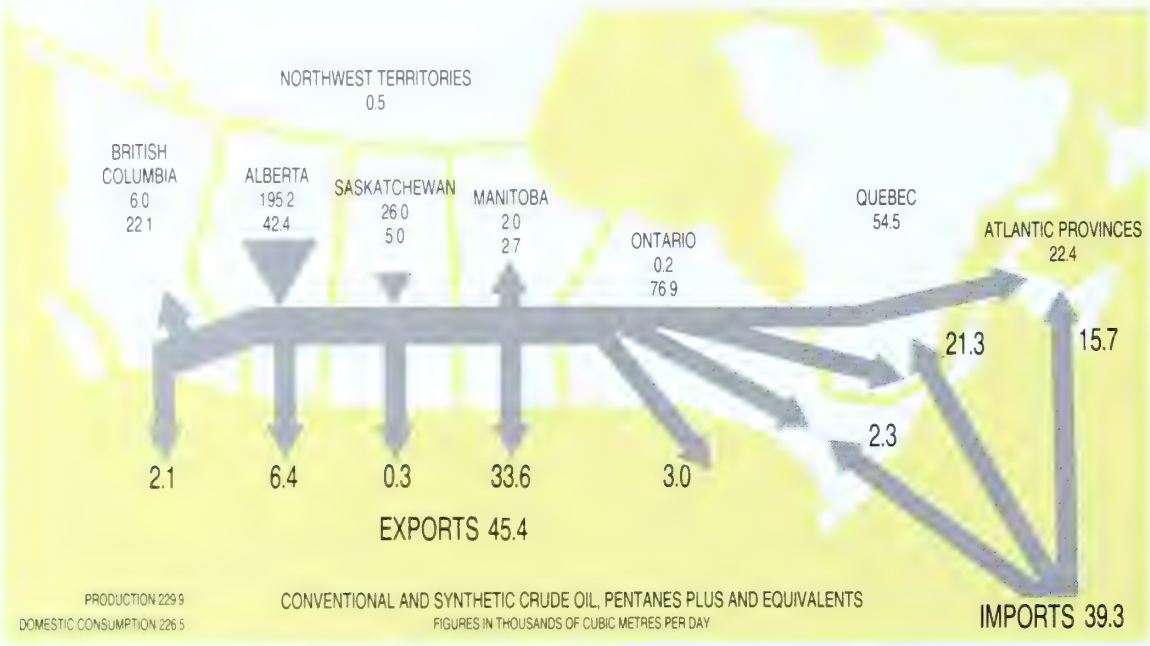
total Canadian production. Approximately 36 per cent of Alberta's gas was sold to other provinces and 31 per cent was exported to the United States.

Remaining established reserves of marketable natural gas in Alberta at the end of 1985 were estimated to be 1,768 million cubic metres. This was 63 per cent of Canadian reserves.

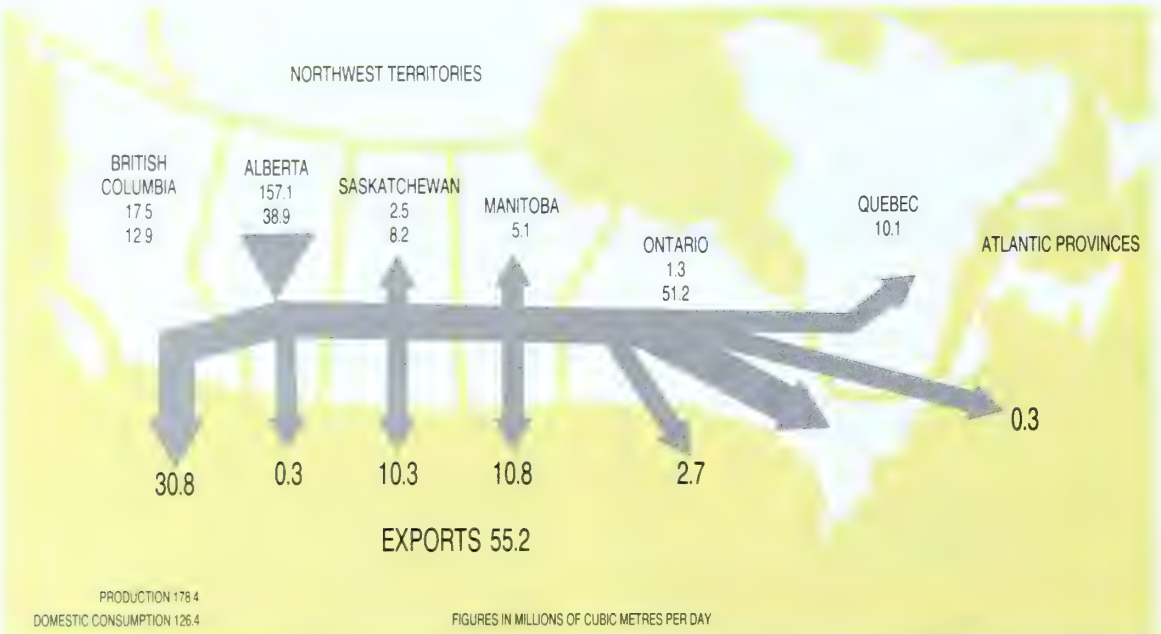
At present there are almost 500 gas processing plants in Alberta where the gas is stripped of its by-products and upgraded to pipeline quality. Additional processing capacity is being provided by the expansion of existing facilities and by the construction of new plants.

The sale of crude oil, natural gas and related products totalled approximately 95 per cent of the $27.3 billion value of minerals produced in 1985. Alberta government revenue from mineral resources for the years 1976/77 through 1984/85 is shown in an accompanying table.

For data on this subject please refer to tables 4.3 to 4.11 in the Appendix



MOVEMENTS OF OIL WITHIN, TO AND FROM CANADA, 1983



MOVEMENTS OF MARKETABLE NATURAL GAS WITHIN, TO AND FROM CANADA, 1983

Oil Sands

Oil sands deposits underlie 60,000 square kilometres of northern and eastern Alberta. The importance and potential of these relatively untapped oil reserves have increased dramatically in recent years because of decreasing conventional crude oil supplies, increasing world petroleum prices and the desire of both the federal and provincial governments to lessen Canadian dependence on oil imports. More sophisticated recovery techniques have made this oil source technologically feasible to exploit.

The three major deposits — Athabasca, Cold Lake, and Peace River — together hold an estimated 266.4 billion cubic metres of bitumen in place. Remaining established reserves of synthetic crude oil obtainable from mineable areas amount to about 4.1 billion cubic metres.

Crude bitumen deposits also are known to occur in carbonate rocks which underlie the Alberta oil sands. In-place reserves have been estimated at 50.5 million cubic metres for the Grosmont Formation in these accumulations.

The Athabasca is the largest of the oil sands deposits, with bitumen reserves estimated at 212 billion cubic metres in place. Parts of this deposit can be surface-mined, as the overburden coverage is only 120 metres or less. Elsewhere in this deposit, and in the other three deposits, the overburden is much thicker and recovery is possible using only underground or "in situ" techniques. As the bitumen may range from a viscous heavy oil to a solid, the recovery process requires several stages. Very heavy gravity and extremely high viscosity make bitumen much less able to flow than conventional crude oil.

The bitumen deposits are mined with bucket-wheel excavators or with giant draglines. The sand and crude bitumen are then separated using a hot-water flotation process developed by the Alberta Research Council. The sands are exposed to steam, producing a thick slurry which is dropped into hot water. As the oil and sand separate, the sand sinks and the oil can be skimmed off. The resulting raw bitumen is upgraded by removing sulphur and nitrogen, and either by adding hydrogen or removing carbon. The end-product of this process is a high-grade synthetic crude oil suitable for refining. The synthetic crude yields generous amounts of aromatics used in the production of phenol, styrene, polyesters, surfactants and dye-stuffs.

The two older oil sands plants currently operating in the Athabasca deposit are essentially similar,

Sand underlies 60,000 km^2 of northern Alberta



although Suncor uses electrically powered bucket-wheel excavators to mine the sands while Syncrude utilizes enormous draglines.

Suncor opened in 1967, a pioneer in commercial oil sands production. In 1985 this plant attained a daily average production rate of about 6,279 cubic metres of synthetic crude oil, a 15 per cent reduction from 1984, due to a scheduled maintenance shutdown. Total production for 1985 was 2,175,029 cubic metres. Design capacity of the plant is 10,329 m^3/day. The first expansion of this plant began in late 1983

Syncrude began operating in 1978, and has steadily increased production rates ever since. Total production for 1985 was 7,394,245 cubic metres. Design capacity of the plant is 22,932 m^3/day.

This plant has been the site of innovative techniques: the use of the giant draglines, the installation of facilities to ensure optimal separation of bitumen and sands, as well as the installation and operation of the largest fluid coking facilities in the world. The Alberta government, through Alberta Oil Sands Equity, has a share of 16.7 per cent in this project.

During 1983 and 1984, several commercial scale in situ projects were announced for the Alberta oil sands. These included Amoco Elk Point, BP/Petro Canada Wolf Lake, Esso Cold Lake, Shell Peace River, and Dome Lindbergh.

As well, more than 30 experimental in situ recovery schemes are scattered throughout all four oil sands deposits. In these projects heat is applied to reduce the viscosity of the bitumen; the deposit is then injected with a stimulant such as steam, hot water, air or a caustic substance.

Since September 1985, four commercial in-situ projects have been approved by the ERCB, with a total capacity of 67,500 b/d (Dome Lindbergh, Dome Primrose, Murphy Lindbergh, and Suncor Burnt Lake). The recent drop in oil prices has led these companies and many others to either shut-in production of projects already in operation, or postpone planned facilities and expansions. PanCanadian Elk Point, Murphy Lindbergh, Dome Primrose, Suncor Burnt Lake, and Canadian Occidental Manitokan have all been postponed. Amoco Elk Point has also shut-in most of its production. However, Esso Cold Lake, BP Wolf Lake, and Shell Peace River will continue steam injection and bitumen production.

Coal

The coal industry underwent a decline in the 1950s, a decline which began to reverse in the early 1960s. This recovery continued to the end of the 1970s, when the world coal industry again entered a slump in response to reduced economic growth in most industrialized western countries. Structural change and increased conservation of energy in general also combined to alter the demand for coal.

The Alberta metallurgical coal industry is highly dependent on exports to Japanese steel producers while its thermal coal sector has been boosted by the replacement of natural gas with coal in the province's major electric utilities. In addition, large eastern utilities notably Ontario Hydro, have begun to supplement their supplies with Alberta coal. The coal sector now ranks as one of the largest extractive industries in the province.

Our greatest reserve provides electric power to most of Alberta

Coal industry productivity has improved through the use of large equipment and through the shift away from many small operations to fewer, and larger more efficient mines.



Coal-bearing formations underlie approximately 300,000 square kilometres of Alberta (or almost 46% of its land area) in three distinct regions —the Plains, Foothills and Mountain regions. The accompanying map illustrates the general pattern of coal distribution. Coal in the Foothills and Mountain regions tends to have higher calorific value and less moisture, making it a higher quality fuel. Alberta coal is a clean-burning fuel, as it has a very low sulphur content.

The Plains Region of eastern Alberta contains an estimated 18.2 billion tonnes of coal, the majority of which is subbituminous coal suitable for thermal-electric generation. Lignite, which has a greater moisture content and lower calorific value than subbituminous coal, is present in smaller amounts. Recently, interest has been generated in the deeper coals requiring underground mining, which make up nearly half of the Plains' reserves. Coal in the Foothills is generally high-volatile bituminous thermal. The majority of the 1.87 billion tonnes in reserves can be surface-mined.

Mountain coals range from semi-anthracite to high-volatile bituminous, although most are low- to medium-volatile bituminous suitable for coking and for the production of steel. Recoverable reserves in this region total 1.71 billion tonnes, of which about 63 per cent will require underground mining. As only the flat-lying parts of these reserves can be mined using conventional technology, a recovery method will have to be devised for the thick and steeply-dipping reserves which are often folded and faulted. Most mining in the Mountain region is currently done by the open-pit, shovel and truck system. Production from the Mountain and Foothills regions is upgraded in coal-preparation plants, which yield about two-thirds clean coal.

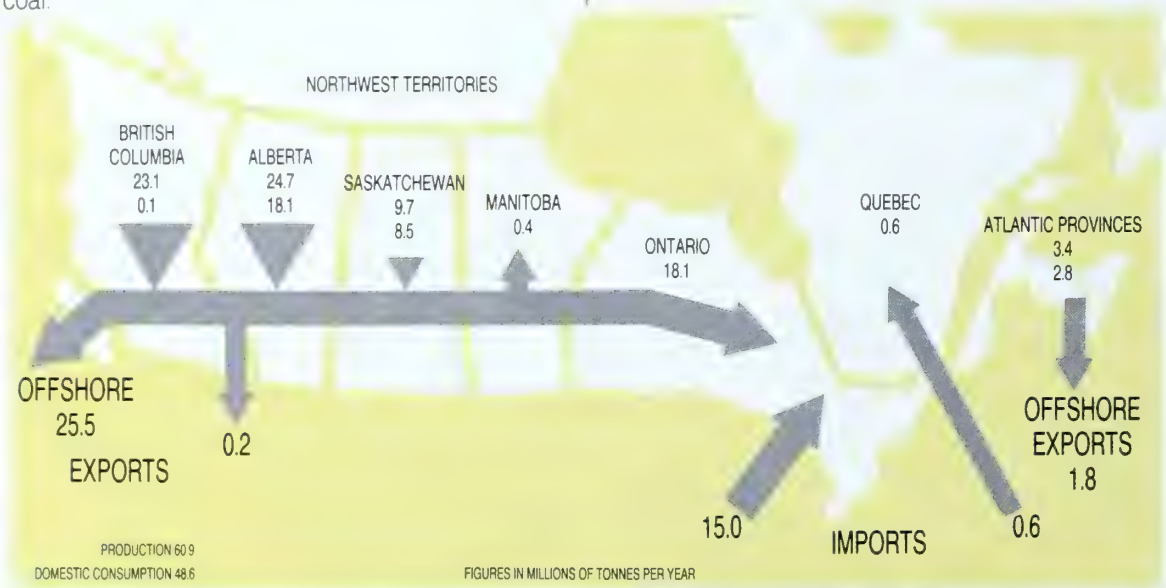
The cost of strip-mining the shallow parts of flat-lying coal seams of the Plains region is relatively low, since the cover is mainly glacial tills and soft sediments. Reclamation of such areas is usually not expensive. Most of the current production of Plains region coal is burned "as mined" in mine-site electric-generation stations.

The open-pit mines of the Mountain and Foothills regions require drilling and blasting of rock. The cost of mining, including reclamation, is considerably greater than in the Plains region, where mining is by dragline.

The Energy Resources Conservation Board has estimated the total remaining established reserves of coal at 23.9 billion tonnes, and ultimate potential reserves at 790 billion tonnes. Deliveries have increased in recent years, and currently total about 21.1 million tonnes per year. In 1985 Alberta used approximately 17.1 million tonnes or 73 per cent of the volume of coal sold. 1.5 million tonnes (8 per cent) were shipped to other provinces and 5.5 million tonnes of bituminous coal went to offshore areas.

Many of the large Plains coal fields may be, or already are, dedicated to electric-power generation. Some of the electricity generated from coal could be used in railway electrification and for further development of urban light-rail transit systems, thus freeing significant quantities of oil for other uses. Certain deposits could be mined economically to provide feedstock for large synthetic natural gas plants, or for other uses such as the manufacture of liquid fuels, or to provide heat for the recovery of heavy oils and bitumen from the deep oil sands deposits of the province.

For data on this subject please refer to tables 4.12 and 4.13 in the Appendix



MOVEMENTS OF COAL WITHIN, TO AND FROM CANADA, 1985



Electric Power

Throughout the world the availability of electrical energy at reasonable cost is an important factor in industrial development. Alberta is fortunate because of its hydroelectric potential and abundance of coal and natural gas.

Alberta is the fifth largest producer of electricity in Canada. The province's installed electrical generating capacity at the end of 1985 was almost 6,300 megawatts of which 64 per cent was coal, 22 per cent natural gas, 13 per cent hydro, and less than one per cent fuel oil. Over the past 10 years the fuel sources for electrical generation have shifted away from natural gas and hydro towards coal. Whereas in 1975 natural gas and hydro produced 53 per cent of the electricity generated in Alberta, by 1985 they accounted for only 8 per cent. Coal produced almost all of the remaining electricity throughout the period.

Much of the province's subbituminous coal reserves is surface-mineable at low cost and is reasonably close to the major electric energy load centres. Although gas is more costly than coal, the price differential in the past was offset by the lower capital cost of gas-fired electricity generating plants.

Hydroelectric power is developed along the Bow River System west of Calgary and along the North Saskatchewan River system adjacent to the foothills of central Alberta. Although the development of hydro sites can require a substantial amount of capital, the absence of a fuel cost makes certain hydro projects competitive with thermal generation.

In 1985 approximately 988,000 customers were provided with electricity in Alberta - 765,000 residential customers, 110,000 commercial, 90,000 farms, and over 20,000 industrial. The growth in annual electric energy consumption is shown in an accompanying table. Average revenue rose from 1.97 to 5.49 cents per kilowatt-hour over the period 1975 to 1985.

Power plants and major consumption centres are connected by an extensive network of transmission lines. These lines extend from Medicine Hat in the southeast to areas beyond Rainbow Lake in northwestern Alberta, within 80 km of the Northwest Territories. Isolated plants, which are not connected to the main transmission system, serve a few communities such as Jasper.

The principal municipal electric utilities in the province are those in Edmonton, Calgary, Lethbridge, Medicine Hat, and Red Deer. Privately owned utilities supply most of the smaller communities and farms as well as bulk power to the cities of Calgary, Lethbridge, Medicine Hat, and Red Deer. Net capacity and net energy generated in 1985 and net generation by type of power source are shown in the accompanying tables.

Coal is source of 2/3 of electric power in province

Future generating stations that have been approved for construction are two 363-megawatt units at the new Sheerness Power Plant in 1986 and 1987 and two 384-megawatt units at the new Genesee Power Plant in 1988 and 1989.

For data on this subject please refer to tables 4.14 to 4.17 in the Appendix

Energy Conservation

Alberta is very well-endowed with energy resources. In 1938 the province established the Oil and Gas Conservation Board (now the Energy Resources Conservation Board) to regulate energy resource development and ensure that the resource would be produced in the most efficient and economic manner. The Board continues to monitor the activity of Alberta's energy production industry as a means of conserving energy resources in the field at the point of production.

There have been rapid increases in energy prices to Alberta consumers in recent years after decades of steady or declining real energy prices. The result is that energy consumers are now becoming more interested in reducing their energy use and costs

Although energy use fluctuates on an annual basis, it can be seen from an accompanying table that the transportation and industrial sectors are the largest energy consumers in the provincial economy, each with roughly 30% of total energy use. Residential and commercial sectors (including schools, hospitals and public administration as well as businesses) each account for somewhat less than 20% of total energy use. Energy used in agricultural production comprises roughly 7% of the provincial total

The provincial government has established information and awareness programs to assist energy users in evaluating their technical options for reducing energy costs. Major programs are directed to homeowners and residential contractors, school teachers and students, and industrial energy users, to promote awareness of good energy management practices.

Programs of technical advice and/or financial assistance for energy conservation on farms, in school buildings and in government buildings have also been established.

The Industrial Energy Conservation Program is of special interest because it is directed to the largest energy-consuming sector in the province. A key element of this program is the provision, on request, of a free analysis of an industrial or commercial establishment's energy consumption.

The service focuses on identifying opportunities for energy savings in commercial, industrial and institutional facilities.

The energy audit service has been available since 1980, and delivers over 200 energy audits a year on request to Alberta industry, business and institutional facilities. Results of these audits suggest typical energy cost savings of 20% can be achieved, mostly by adopting inexpensive energy management measures

There is no doubt that as energy prices continue to rise in Alberta, businesses will become even more interested in efficient management of their energy use.

For data on this subject please refer to table 4.18 in the Appendix

Transportation

Distance from ocean ports, distance from large population concentrations, relatively large internal distances between commodity consumption or production centres, and a relatively sparse population, all combine to make Alberta industries and individuals extremely conscious of the importance of transportation to economic development and to personal convenience. Transportation costs and time are often the difference between profitability and business failure. Alberta producers have to compete with others who have readier physical access to markets, who have lower transportation costs and who can make speedier deliveries.

At the turn of the century when the province was formed, railways provided the only means for the movement of the bulk commodities — grain, livestock, forestry products, and coal — on which early economic development depended. For shorter distances, horses and horsedrawn vehicles provided the only motive, power and conveyances.

By the 1940's automobiles, trucks, and primitive aeroplanes were displacing equine power for the short-haul movement of persons and small-load commodities. Telephones began to replace mail as a means of communication.

By 1980 transportation systems were revolutionized both locally and world wide. Railways and ocean transport had been largely relegated to the long-distance transportation of bulk commodities, especially in the North American context. Today, Alberta's transportation systems are much different than they were decades ago. Trucks, automobiles and buses provide fast, convenient and low-cost transportation for goods and people over an excellent government-owned and operated road system. Railways, which own and maintain their own infrastructure, carry large volumes of bulk commodities by unit trains, an increasing volume of high-value merchandise freight by container and piggy-back, and a relatively small but growing number of passengers by transcontinental trains.

Pipelines carry significant volumes of certain products more efficiently to continental markets. The speed and relatively low cost of aeroplane travel have made local, continental and world wide destinations readily and financially accessible to vast numbers of persons and industrial firms.

Improved refrigeration techniques have made possible the movement and distribution of enormous volumes of perishable goods such as fruits and vegetables. The construction of highways and bridges has evolved to standards sufficient to cope with the immensely increased demands of modern usage and needs.

All these developments imply reductions in real and relative transportation costs and much higher efficiency. Certain types and instances of development have almost universal impact: better engineering of power plants and vehicles; cheaper and better quality fuels; pipelining techniques; the evolution of "container" traffic, for example, with inherent cost-saving opportunities such as double stacking. Other facets of cost reductions are within the control of local authorities.

In this latter field the Alberta government is doing all in its jurisdiction to assist in the lessening or removal of natural or man-made handicaps affecting Alberta producers. An excellent high quality road and bridge system has been constructed linking all parts of the province. The initial impetus for rail extension to relatively remote areas has been supported and financed. To meet the needs of growing traffic demands, focus has now turned to the huge investments being made by railways to expand westbound capacity.

Instrumental in achieving these investments has been the replacement of the Crowsnest Pass rates with the current compensatory freight rate structure under the Western Grain Transportation Act. Because of potential rail capacity constraints, Alberta has worked to have the grain freight rate structure revised to remove the disincentive to grain movement and rail investment.

Air strips have been provided for use in mineral,


EXIT
7
Truck Area
EXIT
SPEED
50
km/h

forestry, and tourist development. Financial assistance is being provided for the improvement of ocean ports through which products must pass. Significant improvements to intercity and transcontinental passenger rail services are being studied. Practical, financial, and moral support is given in negotiations to obtain the best possible railway freight rates.

The cumulative effect of all these measures is apparent in the ever higher volumes of raw and manufactured Alberta products reaching continental and world markets.

Highways

The Alberta economy has always been very closely linked with developments in transportation systems. Growth in interprovincial and intraprovincial highways has played a significant part in economic development and in transforming the life styles of Albertans.

There are currently over 15,000 kilometres of paved rural roads and highways. A continuing highway upgrading program is being undertaken by both the provincial and municipal governments. Excellent arterial roads and highways link similar main highways in the adjacent provinces of British Columbia and Saskatchewan, and south into the United States. Both the Trans-Canada Highway (through Calgary) and the Yellowhead Highway (through Edmonton) function as major 'coast to coast' routes.

Over the past two decades the development of roads and highways has played a major role in changing the growth pattern of Alberta's smaller centres. Certain towns have developed into larger service centres; others are declining in functional importance. Easy access to city stores and markets is often offset by the even easier access to the expanded services being offered by the larger towns. Freight trucks offer stiff competition to the railways in terms of both cost and convenience.

It is the responsibility of the Alberta Department of Transportation to construct and maintain the primary highway systems. Local municipal governments are responsible for the construction and maintenance of district roads connecting rural areas with service centres and main highways. The province provides roads where there is no local government.

The provincial government contributes financially to the costs of secondary roads in rural areas and of approved arterial thoroughfares in urban areas, although administrative jurisdiction and operation remain with the municipal governments.

The development of resources in more remote areas of the province has been encouraged by the construction of highways to centres such as Fort McMurray, Grande Cache and the Cadomin and Luscar coalfields. Forestry roads crisscross the 60 per cent of the province which is covered by forest, providing easy access to timber and other resources.

Economic and social developments within the province have a dynamic effect on the transportation demand pattern. Alberta's high level of highway service is not only due to the opening of new routes; considerable effort is required to maintain and upgrade the existing system to keep abreast of changing demands.

By 1985 there were over 151,000 kilometres of rural highways and roads in Alberta in the following categories: paved (17,612 kilometres), oil treated (9,615 kilometres), gravelled (102,677 kilometres), and graded (19,017 kilometres).

In 1985 there were over 2,000,000 registered motor vehicles. Of this total there were some 400,000 trucks in operation, and some 1,300,000 passenger cars.

Well developed high grade road systems

Large and small scale truck transport operators are assisted by a government policy of freedom in rate setting, and in ease of entry into business. The Motor Transport Board is willing to consider deregulating certain aspects of the industry. This allows competitive forces to develop, support and maintain commercial trucking services.

Private commercial trucking accounts for over 25 per cent of total cargo flow. Intermodal transportation facilities are used extensively by both shippers

and truckers on long haul and import/export travel lanes

The advanced highway infrastructure permits the trucking industry to take full advantage of new equipment technology and of maximum utilization of equipment. Highway axle weight control is of benefit to all carriers through simplification and standardization, and because of reduced deterioration of the highway network.

Several privately-owned bus companies provide scheduled passenger transportation and parcel express delivery. Their services link the cities together and provide access to most smaller communities. Approximately two million passengers are carried annually. Greyhound Lines serve the Calgary-Edmonton corridor; the Trans-Canada route through Calgary; the Yellowhead route through Edmonton; the Calgary-Lethbridge corridor; and several other routes located for the most part to the south of Calgary. Coachways System, a Greyhound subsidiary, operates an extensive network of services between Edmonton and points in central and northern Alberta. Major routes are Edmonton-Grande Prairie; Edmonton-Fort McMurray; and Edmonton-Cold Lake. Pacific Western Transportation operates "Red Arrow" luxury bus services on two routes: Calgary-Edmonton and Edmonton-Fort McMurray.

For data on this subject please refer to tables 5.1 and 5.2 in the Appendix

Aviation

Aviation services have played a major role in the development of the provincial economy. Supporting this role are approximately 80 licensed airports, 28 heliports and 8 seaplane bases, in addition to over 800 unlicensed airports. Calgary and Edmonton International airports accommodate both domestic and international services and provide facilities for pre-clearing U.S. customs.

Air services have evolved in response to changing demand. In 1982, following a decade of strong growth, passenger traffic at the three major airports (Edmonton International, Edmonton Municipal and Calgary) declined. This trend continued throughout 1983, but during 1984 (the last year for which data were available), the decline was reversed and a modest recovery initiated. During 1984, passenger enplanements and deplanements at these airports totalled 6.2 million. This compares with 7.8 million in 1981 and 6.1 million in 1983

Air freight fared considerably better at the two international airports, increasing from 54.7 million kilograms in 1982 to 65.5 million kilograms in 1984, an increase of 19.7 percent.

Notwithstanding the negative impacts of the



recession on airline traffic volumes, Alberta continues to enjoy a high level of air service. Air Canada and Canadian Pacific Airlines provide transcontinental service using both wide-body and narrow-body jet aircraft. C.P. also provides regional service into B.C. and the Yukon. Pacific Western Airlines provides jet service throughout Western Canada, the Arctic and as far east as Toronto and Ottawa. A cornerstone of its operations is the high-frequency Airbus service connecting Edmonton and Calgary. Wardair now offers scheduled service to Toronto and Vancouver. Commuter-type services which connect Edmonton and Calgary to regional centres throughout Alberta and southern B.C. are provided by Time Air; linkages to the Arctic are provided from Edmonton by Northwest Territorial Airways. Norcanair provides regional service between Alberta and Saskatchewan.

Service to the United States has increased, with new jet services initiated by America West, United Airlines, Air Canada, Western Airlines and Northwest Orient Airlines continue to serve transborder markets, and Continental Airlines has entered the transborder market as a replacement for American Airlines

Service to Europe has improved with the addition of KLM Royal Dutch Airlines connecting Calgary and Amsterdam. Wardair introduced scheduled service between Alberta and London. These services supplement services offered by C.P., Air Canada and Lufthansa German Airlines.

Wardair, Canada's largest charter air firm, provides both domestic and international charter services. PWA, C.P. and Air Canada are also active in the charter market.

Transcontinental dedicated freighter services are provided both by Air Canada using jet aircraft and by Northwest Territorial Airways using turbo-prop aircraft.

Alberta is favoured with a large number of commercial air carriers that provide charter and specialized services. Corporate aviation also plays an important role. Many companies have developed extensive expertise in satisfying the unique needs of the oil and gas industry.

The future of the aviation industry in Alberta appears promising. There are signs that traffic is stabilizing and recent changes in the regulatory structure have given the air carriers greater flexibility to respond to market conditions. Proposed legislative changes will enhance this flexibility. A recent corporate restructuring of PWA and the significant expansion of Time Air's operations should enable both of these Alberta-headquartered air carriers to benefit as economic conditions improve. As the economy of Alberta matures and its base diversifies, the role of air services will assume even greater importance.

Railways

The completion of the Canadian Pacific Railway in 1885 opened Alberta for major economic development. Since that time, the railways have been an essential element of economic growth.

Resource development necessitated the establishment of other regional rail lines. The Northern Alberta Railway (NAR), now owned outright by the CNR, services the Peace River block and has a line northwest to Fort McMurray from Edmonton. The Alberta Resources Railway, owned by the Alberta government, was completed in 1969. It was conceived primarily to accelerate the development of the natural resources of coking coal, gypsum, pulp wood, timber, petroleum, natural gas, and sulphur in the area lying north of Hinton and south of the Peace River block. To date, mainly coal mining has been assisted — up to 3 million tonnes being moved annually from Grande Cache through the Neptune coal terminal at Vancouver to Japanese and other overseas markets.

A railway line to Hay River and the Pine Point lead-zinc mines of the Northwest territories was completed in 1969 by the CNR with federal government financial assistance. It is an important factor in the economic development of the Mackenzie Valley and the Arctic Coast. Large volumes of northbound equipment and material pass through the railhead at Hay River for shipment by barge along the Mackenzie River system.

VIA Rail Canada Inc. utilizes CNR and CP rail trackage in Alberta to provide two rail passenger services: the daily transcontinental "Canadian" on the CP rail route through Calgary and the daily Winnipeg-Vancouver "Super Continental" on the CNR, with a tri-weekly connection between Jasper and Prince Rupert. The transcontinentals carry roughly 200,000 passengers annually through Alberta. The federal government is committed to modernizing these trains through the acquisition of new bi-level rolling stock.

The Alberta government has sponsored a series of studies into the future potential of a frequent, downtown-to-downtown high-speed service between Calgary and Edmonton for possible introduction in the 1990's. The actual start up date will depend upon economic conditions and population growth.

The VIA services are important to Alberta both for the basic transportation links they provide to other parts of Canada and for tourism. In this regard, Alberta is evaluating means of maximizing the considerable tourism benefits realizable through modernized transcontinental rail services.

The CNR operates a twice-weekly passenger service between Edmonton, Lac La Biche and Fort McMurray, providing the only surface transportation link to several communities in northeastern Alberta.

Intermodal yards have been developed by the railway companies in the major cities. The CNR operates one of the most modern near Fort McMurray, specifically designed for local purposes. It currently handles about 200,000 tonnes per year, although capacity is more than double that figure.

The railways are essential to the movement of bulk commodities such as grains, timber products, coal, sulphur, petrochemicals, and other products to world markets. Bulky processed and manufactured products, particularly for long hauls, are well handled. Industrial developments in northern Canada and northern Alberta are especially contingent on adequate rail service, but all areas of the province require this mode of transport for the maintenance and continuation of balanced growth.

Although not within the provincial boundaries of Alberta, there are extensive plant capacity expansion programs now underway. CP Rail, for example, is into the second year of construction of the Mount MacDonald $600 million tunnel while CN Rail continues its double tracking program through the mountain corridors. While an efficient, high capacity rail system is essential to the competitive position of Alberta shippers in the world markets, the province is concerned about the overall financial sustainability of the rail system and continues to make its concerns known to the federal government.

For data on this subject please refer to tables 5.3 to 5.5 in the Appendix



Intermodal and Water Transportation

Alberta companies depend heavily on intermodal transportation services, as a variety of products are delivered to customers outside the province by a combination of overland and marine transport

Overseas markets are accessed primarily through the Ports of Vancouver and Prince Rupert in British Columbia, through the Port of Thunder Bay on Lake Superior, and the Port of Montreal in Quebec Ocean going vessels carry grain, coal, sulphur (these commodities totalled about about 20.0 million tonnes in 1985), and a variety of other agricultural, chemical, and manufactured products from Alberta

For container movements, modern intermodal facilities are located in Edmonton and Calgary, with excellent highway feeder services from other areas of the province

A number of alternative carriers are available for shipping International Standards Organization (ISO) containers at rate levels below those available in other areas of Western Canada. In recognition of Alberta's emerging importance in generating container traffic to off-shore markets, several international steamship lines have established offices in the province

Alberta products are also shipped on inland waterways, the most important of which are the Mackenzie River for moving products as far north as the Beaufort Sea, and the St. Lawrence Seaway for transporting goods to Ontario, the eastern United States, Europe, and the near eastern countries. The Mississippi River is also emerging as an important link in moving Alberta products to U.S. southern and eastern markets

Barging services on the Mackenzie River, ice free only four months of the year, are central to maintaining Alberta's position as Canada's major gateway to the north. Northbound cargoes are usually consolidated in Edmonton and forwarded to Hay River on Great Slave Lake in the Northwest Territories by rail and truck. From there, barges undertake the 1,770 kilometer trip to the Beaufort Sea in the Canadian Arctic. During the 1986 shipping season, 88,000 tonnes of cargo were transported down the river on shallow draft barges. About three quarters of this tonnage represents resupply shipments for communities along the route, while the remainder is project-specific freight in support of mining, oil and gas activities in Canada's north.

As many of Alberta's resource commodities have unfavourable value to weight ratios, the availability of efficient and low-cost intermodal transportation systems allow Alberta companies to remain competitive and to penetrate new world markets. A number of initiatives are underway to create additional improved intermodal transportation services, particularly with regard to accessing U.S. markets. These include more efficient truck/rail services via the Alberta/Montana border, improved access to U.S. southern and south-eastern markets via the Mississippi waterway, more efficient services to California, and improved provision of shipment consolidation services for less-than-truckload and less-than-containerload shippers

For data on this subject please refer to table 5.6 in the Appendix

Market Data

High personal incomes basis of retail sales

Personal Income Tax Data

The data in this section were compiled from individuals' personal income tax returns. Since the returns show place of residence, occupation, and employer, it is possible to obtain much detailed information on annual and regional bases. Relative affluence, growth or stagnation, within census divisions, and changes in average incomes of occupational groupings, are shown. Reasons for some of the fluctuations and changes can only be inferred from knowledge of local and economic events for specific years. The general pace of economic growth and inflation can be observed.

Since 1971, Alberta's total personal income has increased more than six fold, reaching $27.3 billion in 1983. Seventy per cent of this income was earned in census divisions 6 and 11, which include the province's two major cities, Calgary and Edmonton. The largest and most important component of personal income has been labour income (wages and salaries) which accounted for 74.2 per cent of the 1983 total.

Per capita personal income increased from $2,512 in 1971 to $11,640 in 1983. During this period, the greatest per capita increase in average



income was recorded in census division 12 — a reflection of the growth of Fort McMurray and of the initial industrial development related to the oil sands processing plants.

Between 1971 and 1983 the average income of taxable Albertans more than tripled to reach $26,370. In 1983 professionals recorded the highest average income — $47,966. Perhaps more surprising is the reported almost five fold increase in average pensioners income. It is difficult to determine the changes in real incomes, but it is likely that the increases more than offset the inflation during the period.

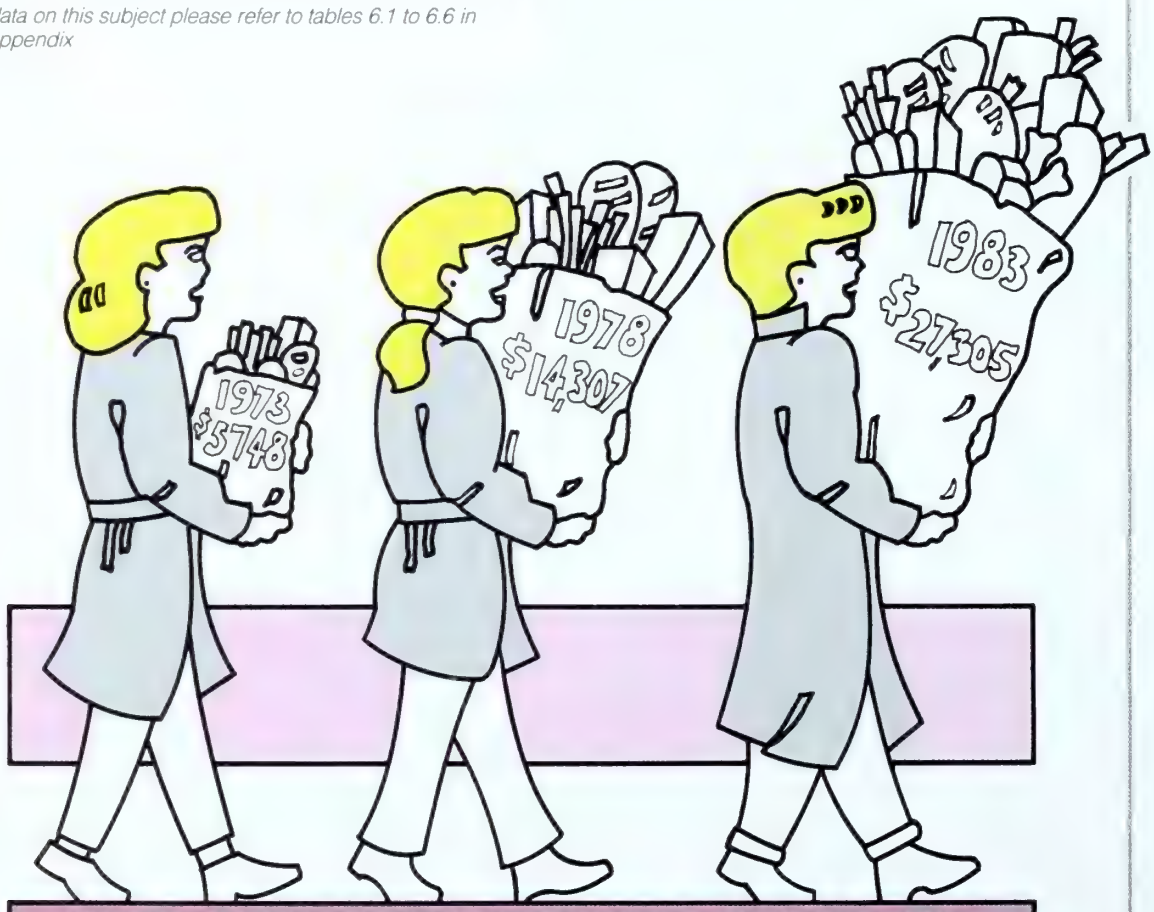
Of the total Alberta taxfilers in 1983 nearly 65 per cent reported incomes exceeding $10,000, while 38 per cent reported incomes of $20,000 and over.

In 1983 over half of the declared personal income of Alberta taxfilers was earned by persons less than 38 years of age. One quarter was earned by taxfilers 29 years of age and younger.

For data on this subject please refer to tables 6.1 to 6.6 in the Appendix

Retail Trade

One measure of prosperity or affluence and of changing emphases in buying habits is evident from retail trade figures. In recent years, the impact and, to an even greater extent, the uneven impact of inflation on costs and prices has clouded perception of real changes. The price of a unit package of goods and services may vary from province to province, and within provinces, because of differences in distribution costs, differences in needs or habits, local differences in production costs, competitive factors, or simply because sellers take advantage of the relative prosperity of areas to maximize their incomes and turnover. Thus interregional and interclassificational comparisons of sales may not be as meaningful as raw figures would indicate.



ALBERTA PER CAPITA REPORTED TAXABLE PLUS NON-TAXABLE INCOME
1973, 1978, 1983

Apparent retail trade volume, as measured by value of sales, in Alberta nearly tripled between 1975 and 1985 although the population only rose by approximately 500,000. Much of the increase was caused by inflation; the consumer price index rose from 58.5 to 127.2 over the period, making it difficult to estimate the actual increases in real value.

Rising personal incomes were the primary force behind this growth. There has been a marked slow-down in the rate of increase of value of retail sales since 1981.

Based on an annual survey conducted by the Alberta Bureau of Statistics for 1984, retail and service trade data are broken down by census divisions. According to the survey the thirteen cities of the province generated 75 per cent of retail receipts. Edmonton and Calgary, with 50 per cent of the population generated 56 per cent of the total.

Full time employees of retail establishments exceeded 75,000 persons, part time employees over 56,000. Full time employees of service trade establishments numbered over 53,000, and part time employees over 38,000. Total payroll of retail and service trade establishments exceeded $2.7 billion.

For data on this subject please refer to tables 6.7 to 6.9 in the Appendix

Consumer Price Indexes

The consumer price index (C.P.I.) is based on the cost of a fixed, commonly purchased "basket of goods and services" as determined during some specified time period. Costs of the various items of the basket change at different rates over time; they also change at different rates from city to city. The weights assigned to the items in the basket of goods and services were last updated in 1978 for selected cities and Canada as a whole

It is to be noted that comparative intercity living costs cannot be determined from the tables in this publication. The 1978 base cost of the basket in say, Montreal, may have been much higher (or lower) than the cost of the identical basket in, say, Calgary. The C.P.I. measures the changes in each city independently. The annual percentage change for each city index measures the price movements, or the rate of inflation, in that city.

Nor should it be assumed that component index changes have an even impact on everyone. For example, the changes in the housing price index, measure only the effects on the renters and home buyers: relatively unaffected are the home owners who have clear title to their residences.

The consumer price index measures the effect of ordinary price changes on typical ordinary citizens. Strictly speaking it is not valid to apply it to specific industries. For example, steel products industry costs may change at radically different rates from those of the chemical or wood products industries, due to completely different national or international competitive and cost factors.

For data on this subject please refer to tables 6.10 to 6.14 in the Appendix



International Trade

International Trade

International trade is an important element of the modern Alberta economy. From early days fur traders, farmers and ranchers relied on external markets for their livelihood. With the discovery of major oil and natural gas fields after 1947, Alberta became an energy-rich province exporting to the rest of Canada and the United States. Commodities related to the energy and agriculture sectors are now the biggest export earners.

With the abundant grain harvests of the sixties and the rise in energy prices in the seventies, more



dramatic changes in the economy began to occur. Prosperity brought fundamental changes in its structure. Resource processing and manufacturing industries were expanded rapidly to upgrade resources and to supply the growing national economy.

Exports have reflected this change. In 1975, only about 10% of exports could be considered to be manufactured. By 1985, manufactured exports had doubled to just over 20% of the total.

In 1985, exports were valued at $13.6 billion about three times the export level of 1975 and a 10% increase over the previous year. During the past few years, at a time when the local economy has been otherwise sluggish, exports have been growing at about 8% annually. Exports represent one-quarter of the provincial gross domestic product. Stated another way, about one in every four jobs can be attributed to the export market.

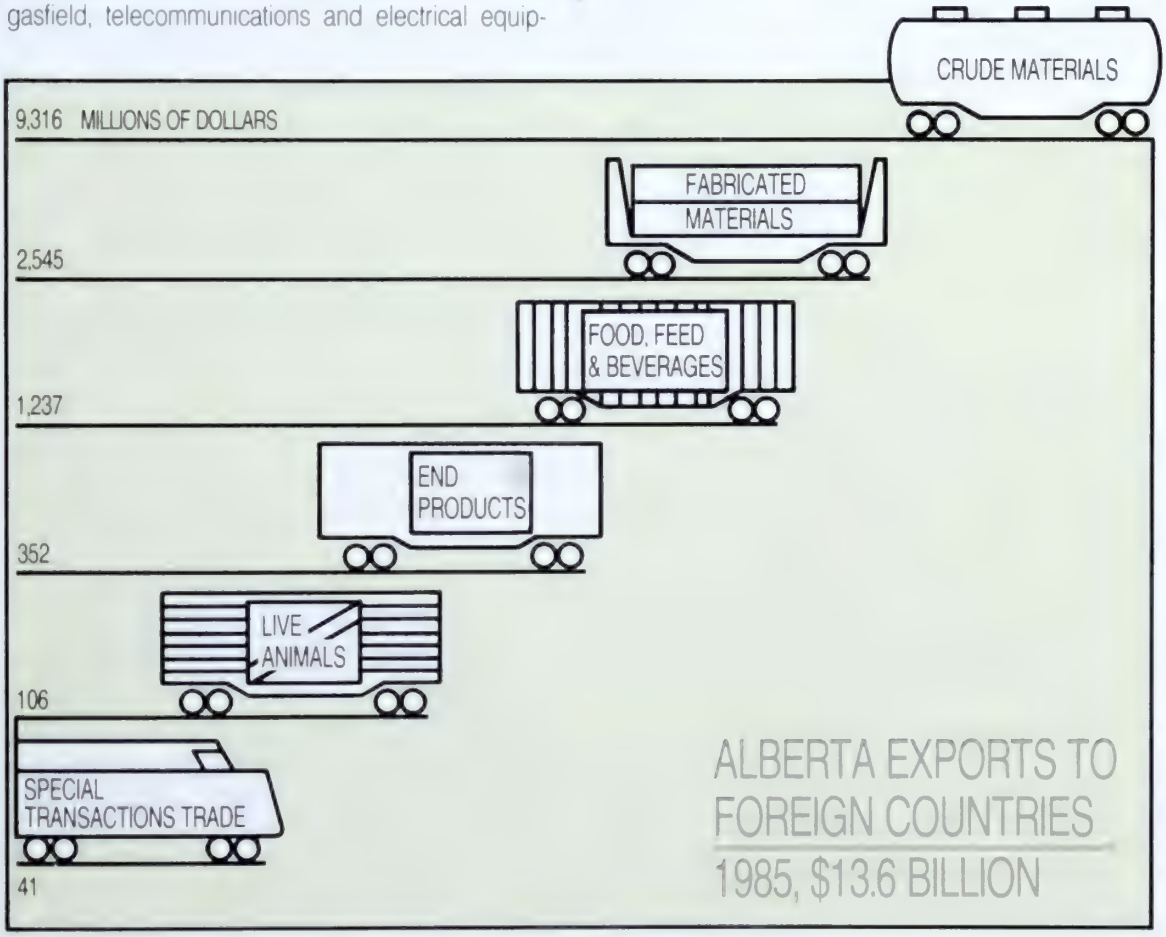
The resource sector continues to be the biggest export earner. Crude materials -- natural gas, crude petroleum, sulphur, and coal, which comprise the bulk of the resource exports, were valued at $9.32 billion, 68.5% of the total. The second largest export sector is the manufacturing industry which produces fabricated materials and finished end products, such as petrochemicals, lumber, wood pulp, fertilizers, and oil, gasfield, telecommunications and electrical equipment, and agricultural machinery. Altogether such products accounted for around $3 billion or well over 20% of the total.

The agriculture sector, livestock and food processing generated $1.34 billion in export revenues for almost 10% of total exports. Major export items in this sector include wheat, canola, barley, meat products, and livestock.

In 1985, Alberta exports went to 120 countries in six continents. Exports to the United States totalled $10.5 billion and represented over three-quarters of the total. The Asia/Pacific Rim countries have become the second largest market receiving just over 12%. Japan and mainland China are Alberta's second and third largest customers.

In Europe, the third largest export region, the USSR is our fourth largest export destination. The newly industrialized and the developing countries are rapidly becoming significant players in the international marketplace. Brazil, South Korea, India, Morocco, Taiwan, and Indonesia occupy the fifth to tenth positions on the list of Alberta's 1985 largest export destinations.

For data on this subject please refer to tables 7.1 to 7.3 in the Appendix



The People

People

Plains Indians were the original inhabitants of the territory which is now Alberta. It is assumed that their ancestors crossed the Bering Strait from Asia in prehistoric times. From carbon-dated remains and artifacts it is known that they reached North America at least 20,000 years ago, subsisting as nomadic hunters and trappers.



Fur-trading companies were active in Alberta during the 18th and early 19th centuries but it was the aftermath of the American civil war and heavy European immigration in the 19th century which really stimulated development of the area. Concerned that American settlers and government would take over all of North America west of the Great Lakes, the federal government of Canada bought out the land grants of the Hudson's Bay Company, established a police force for the area, and assisted financially in the construction of the transcontinental Canadian Pacific Railway. Completed in 1885, the railway brought in settlers and made both necessary and feasible the production and export of commodities other than furs.

The first major tide of immigrants settled in the province during the 1896-1913 period. As a result, population rose from 50,000 to 400,000. A second wave of immigration came during the period 1918-1931, increasing population to 730,000. A third influx, beginning after World War II, continues to the present day. Alberta's population is now over 2,385,000. Official 1981 census data showed that of the current population, approximately 44 per cent are of British descent, 11 per cent German, 6 per cent Ukrainian, 5 per cent French, and about 3 per cent native Indian. Another 8 per cent are of mixed British and other origins; and another 3 per cent are of mixed French and other origins. The balance came from a wide range of countries. There are no significant geographic concentrations of ethnic groups, although that of Slavic



groups is proportionately heavier to the north and east of Edmonton.

In 1981 over 54 per cent of Albertans were native born and an additional 17 per cent were born in western Canada. These proportions may have been modified slightly by the heavy interprovincial migration of recent years.

English is the language of the vast majority. Most religious faiths are represented, with United, Roman Catholic, Anglican and Lutheran churches comprising two thirds of the total.

Until the drought and depression of the 1930's, the population distribution in all census divisions in the southern half of the province (below 54 degrees latitutde) was remarkably even. This situation was dictated by homesteading opportunities, and the fact that all areas were being tested for suitability for various types of agriculture. Only one-quarter of the population lived in urban communities. Over the next five decades, however, these urban-rural proportions were completely reversed as the industrial-social development of the province proceeded

For data on this subject please refer to tables 8.2 to 8.19 in the Appendix

Census Data

Alberta's population reached 2,237,724 in 1981, a 21.7 per cent increase since 1976, and almost double that of 25 years earlier. Over the five year intercensal period, population density increased from 2.9 persons to 3.5 persons per square kilometre. (The Alberta Bureau of Statistics estimates 1986 population to be 2,380,000 persons.)

Most of the population increase over the past five years has occurred in urban areas, where an overall growth rate of 24.0 per cent has brought the urban population to 1.7 million persons, 77.2 per cent of the total.

The population of Alberta cities rose by nearly 416,000 during the 1971-81 decade, partly attributable to the number of locations which achieved city status. The combined population of Edmonton and Calgary rose by 34%; the two cities accounted for just over 50 per cent of all people in the province. The population of towns and villages rose by over 122,000 persons.

In 1981, 81 per cent of Alberta's residents, or 1.8 million persons, claimed English as their mother tongue. This represents an increase of 22 per cent over the same figure five years earlier. Alberta's second largest language group, German, reached 91

Population tripled between 1946/86

thousand in number, a 14 per cent increase. Largest relative increases during the five year intercensal period were experienced within the mother tongue groups having the smallest absolute number of members: Spanish, Indo-Pakistani, Semitic, and Armenian -with increases ranging up to 200 per cent.

The population has increased annually for all but a very few (those related to movements during the War) of the last fifty years. Birth rates peaked in the mid-1950's and have been declining ever since. The actual numbers of live births peaked in 1960, and then declined steadily for more than a decade; in recent years they have been rising again.

Marriage rates were high during the war and immediate post war years, then declined steadily until the early 1960's. In recent years, they have approached war time levels.

Death rates have been declining fractionally but steadily for most of the past fifty years. This is due partly to improved health care, partly to a tendency for older couples to retire in more equable climates, and partly to the heavy influx in recent years of young people from other parts of Canada.

A map showing the new boundaries of Alberta census divisions (CD), effective 1986, is reproduced in this publication. As referred to throughout text and tables:

- CD8 corresponds with new CD's 8 plus 9;
- CD9 is now CD15:
- CD12 corresponds with new CD's 12 plus 16;
- CD15 corresponds with new CD's 17 plus 18 plus 19.



ALBERTA POPULATION *MILLIONS -1957, 1967, 1977 & 1987

Government

Canada's ten provinces and two territories are linked together by a federal system of government Under this system, the federal and provincial governments each have defined areas of jurisdiction. There are also municipal governments which have responsibility for the provision of many local services within their boundaries

The division of legislative responsibilities between federal and provincial jurisdictions is set out in the Constitution Act, 1867 and subsequent amendments. In 1982, the constitution was patriated from the United Kingdom. The Constitution Act, 1982, provides an amending formula for constitutional change and also contains a Charter of Rights and Freedoms.

Section 91 of the Constitution Act, 1867, lists 29 areas, such as defence, banking, and postal service which fall under exclusive federal jurisdiction. There is also a clause which provides for federal responsibility in all areas not specifically detailed in other sections of the act.

In Section 92 of the Constitution Act, 1867, 16 provincial responsibilities, such as health, property and civil rights within provincial borders, are listed. Section 92A provides for a regime of legislative competence in the area of natural resources, including provision for exclusive provincial legislative authority for the exploration, development and management of non-renewable natural resources, forestry resources and electrical energy. Section 93 gives the provinces responsibility over education. Section 109 provides



British parliamentary democracy traditions & practices

that lands, mines, minerals and royalties there from belong to provinces. In Section 95, agriculture and immigration are identified as joint federal and provincial responsibilities with the federal government having paramountcy in the event of a conflict of legislation.

Under the provisions of the Constitution Act, 1867, provincial governments are given responsibility to legislate with respect to "municipal institutions in the province". Accordingly, the duties and functions that municipal governments perform are established by provincial statute. In Alberta municipal government structures are set out in the Municipal Government Act which provides for different forms of local self-government based upon local conditions and population.

While municipal government councils are elected they do not operate on a parliamentary model as do the federal and provincial governments. The elected municipal officials (aldermen and a mayor) serve both legislative and executive functions. The civic administration is, therefore responsible to the entire council for its actions. This serves to involve the elected officials in the process of policy formulation and implementation.

Municipal governments have responsibility for the provision of many local services in Alberta. They provide the protection services of police, fire protection, public health and sanitation; the physical services of roads, streets and bridges; public utilities such as light, water and power; and social services, transportation, and recreational facilities. Local governments also play an important role in planning and designating areas within their boundaries for commercial activities, industrial development, and housing. Local school boards are elected to administer primary and secondary schools within the municipal area.

The Alberta government, like the federal government in Ottawa, has inherited the traditions and practices of British parliamentary democracy. The Legislative Assembly is the body which makes Alberta's laws. This body and an appointed representative of the Sovereign, the Lieutenant-Governor, make up the legislature. The 83 members of the legislative assembly (MLA's) each represent separate constituencies and most belong to political parties. The party which elects the largest number of representatives forms the government, and the next largest party forms the official opposition. If there are other parties with representatives, they too are part of the opposition. When no party has a majority, either a coalition government, with representatives from more than one party, or a minority government, may be formed. Neither a coalition nor minority government has been formed thus far in Alberta's history.

Elections must be held at least every five years. They are called after dissolution of the legislature by the Lieutenant-Governor upon the recommendation of the Premier. They also take place if the governing party loses the confidence of the legislature through a defeat on a major vote. These election requirements provide the ultimate assurance of democracy in Alberta.

The executive branch of the Alberta government is made up of the Lieutenant-Governor in Council, a body composed of the Lieutenant-Governor, the Premier, and the Cabinet.

As the Sovereign's representative, the Lieutenant-Governor must give assent to all laws passed by the legislature and regulations passed by the cabinet, although this Royal Assent has rarely been refused. Because the Lieutenant-Governor is not elected, she does not have authority comparable to that of the elected representatives. The office contributes to stability and continuity since the tenure of each Lieutenant-Governor usually bridges successive governments' terms.

The primary executive function of government is filled by the Premier, who is the leader of the party with the most seats in the legislature, and Cabinet, all of whom are elected members of the legislature. Cabinet ministers receive their appointments from the Lieutenant-Governor upon the advice of the Premier. The Premier is chairman of the Executive Council or Cabinet. Through laws passed in the legislature,



authority for many day-to-day decisions of government is delegated to the Cabinet. Cabinet ministers are responsible to the legislature for the activities of government departments. They also have a major role in recommending legislation to the legislature

Over the years, Alberta's governments have been conscious of their accountability to the public and of the public's rights in dealing with government. Alberta was the first Canadian province to establish the office of ombudsman. The ombudsman is empowered to review situations and recommend remedial action in cases where members of the public may have been improperly affected by government decisions. The ombudsman is independent of other government officials and reports directly to the legislature

Alberta was also the first province to allow regular televising of debates in the legislature. A Hansard (written record of debates) is also published

Environmental Protection

The government of Alberta recognizes that the province's beautiful natural environment must be protected against the potentially harmful effects of industry. In 1971, the government passed an act establishing the department of environment. The department administers 13 laws which give it authority to prevent and control pollution of air, water and land, manage water resources, conserve land and conduct environmental research.

Environmental standards for common pollutants in Alberta are at least as stringent, and in some

cases more so, than in other provinces. Measures to enforce standards are taken even before development begins. Certain industries are required by law to apply to Alberta Environment for a permit before starting construction. The department assesses possible effects on the environment and sets out terms and conditions, such as plant design and pollution control, in the permit.

When an application is approved the department issues an operating licence. The licence sets limits on the amounts of pollutants that can be emitted and specifies monitoring requirements. Licensed operators must report their monitoring data regularly to the department.

The Alberta government has achieved a high degree of compliance with environmental standards through the process of negotiation. However, if the cooperative approach does not clear up an environmental problem the offender may be subject to the full range of enforcement methods such as directives, control and stop orders and even prosecution.

Companies wishing to develop may be asked to submit an environmental impact assessment to the department. The purpose of an EIA is to describe possible effects of a project on the environment and ways of either avoiding or reducing them. Proponents will often keep local residents informed about the project and consider their views when preparing an EIA.

When land is disturbed by a new project the operator must agree to restore it to its original use once the activity has ceased or the plant closes down. In the past, many parcels of land used as garbage dumps, mines, sand or gravel pits and the like were simply abandoned. Now, with money from the Heritage Savings Trust Fund, derelict sites are being reclaimed for productive use. In fact Alberta is in the forefront of research to return disturbed land to its former state.

Alberta Environment also administers about 13 restricted development areas around cities. The RDAs as they are known include environmentally sensitive land and transportation and utility corridors.

One of Alberta's most pressing environmental problems -- the estimated 90,000 tonnes of hazardous wastes produced annually - is nearing a solution. Early in 1984 the department of environment announced that a location for a hazardous waste treatment plant had been found about 200 km north-west of Edmonton near Swan Hills. The plant will be operated by a private company and is expected to become fully operational in 1987.

On April 1, 1984 the government established the Alberta Special Waste Management Corporation to make sure that hazardous wastes are properly treated and disposed of and to oversee operations of the treatment plant.

Recycling is the other side of waste management. Alberta Environment promotes recycling of glass, paper and other re-usable materials by giving technical information and grants to municipalities and community groups and by encouraging the public to collect and return items for recycling.

For example, the department helped establish a network of about 300 used lube oil collection depots in major centres and has assisted various groups to set up paper collection depots. Alberta is the only province with a beverage container return system. More than 200 depots are licensed by Alberta Environment to accept glass, plastic and aluminum beverage containers.

Many other environmental concerns have been the subjects of scientific research in recent years. The Alberta Environmental Centre in Vegreville carries out applied research for the department of environment and for other government departments and agencies. Other scientists are commissioned by the department to find new techniques for reclaiming land, to evaluate the environmental effects of oil sands developments and so on.

In 1983, the department of environment and the petroleum and utilities industries embarked on a unique research program to determine the effects of acid rain on the environment and on human health. The $11 million acid deposition research program will take at least six years to achieve its ambitious objectives.

The department also manages the province's ground and surface water, making sure there is enough good quality water to meet major foreseeable needs. Some services provided by the department are river flow forecasting (used to predict floods and drought), design, construction, operation and maintenance of structures such as dams and weirs, river basin planning and granting of permits and licences for the use of water.

Flood and erosion control projects throughout Alberta are partially funded by Alberta Environment. Major projects in the next few years will be construction of the Oldman Dam near Lethbridge and improvements to irrigation headworks and canals.

Alberta Environment administers the following legislation: The Clean Air Act; the Clean Water Act; the Alberta Environmental Research Trust Act; the Groundwater Development Act; the Water Resources Act; the Beverage Container Act; the Agriculture Chemicals Act; the Litter Act; the Land Surface Conservation and Reclamation Act; the Drainage Districts Act; the Environment Council Act; the Hazardous Chemicals Act; the Special Waste Management Corporation Act, and the Department of Environment Act.

Manpower and Training

Since 1981, Alberta economic performance has been highly cyclical. Economic growth returned in 1984 based on an oil and gas industry resurgence Continued strong growth in this sector led the provincial economy to record the highest growth rate of any province in 1985. The steep decline in oil prices since late 1985 has, however, had a dramatic impact on the oil and gas industry and on the economy as a whole. Labour force growth, which had slowed considerably in the 1981-1983 period, slipped even further in 1984 and then posted a decline in 1985.

While overall employment has stagnated in the past three years, and that for men has actually declined, employment among women has risen steadily. This rise in the number of working women matches the current world-wide trend.

Industry employment trends established during the 1981-1983 downturn have continued: further downsizing in the construction sector, especially in 1984; stagnation in manufacturing and transportation; and, continued growth in services. Employment in the agriculture and other primary sectors rose in 1984 but then remained unchanged in 1985

The participation rate is that proportion of the population aged 15 years and over, which is employed or actively seeking work. Despite economic fluctuations, the Alberta participation rate remains the highest in Canada with 71.9% of the working age population in the labour force in 1985 Both men and women have the highest Canadian participation rates

The Alberta economy continues to provide the most jobs in relation to the working age population of any province. The employment to population ratio was 64.6% in 1985: the highest in Canada

Employment in the managerial, professional and service occupations has risen since 1981; all other occupational groups have declined in size. This is especially true for construction occupations which have shrunk to about two-thirds the 1981 peak. The number employed in primary occupations recovered strongly in 1984 to the 1981 level but then slipped back in 1985

These changes in economic activity have held significant challenges to government administrators overseeing different aspects of the labour workers The response on the part of government has taken, many forms: career information and placement services to future labour market participants and to those seeking to change careers or obtain employment, summer student and winter employment programs, and special manpower programs for particular population groups and the disadvantaged.

In answer to the challenges posed by lower levels of employment growth and industry-wide downsizing, the government has implemented the Alberta Training Program. This program provides wage subsidies to private sector employers who offer job training and skill development opportunities to their employees. The Alberta Youth Employment and Training Program, which also offers wage subsidies to employers, is aimed at providing young post-secondary graduates with job opportunities related to their training. The Wage Subsidy Program provides businesses and farms with a subsidy for hiring new employees or for retaining workers who might otherwise be laid off.

Besides these programs, government officers counsel and consult with firms on behalf of employees and monitor individual industry developments for adverse labour market consequences.

The apprenticeship program is a vital factor in the provision of a skilled workforce. The program covers 51 designated trades. An apprentice works under the supervision of a qualified tradesman and is usually paid an hourly wage which increases according to his experience in the trade and prevailing journeyman rates. Alberta with 10 per cent of Canada's population trains roughly 22 per cent of Canada's apprentices

Training programs related to several of the apprenticeship trades are available in Alberta high schools, colleges and technical institutes. These approved programs are not part of the apprenticeship system but those who complete them may receive credit towards an apprenticeship.

The Lieutenant-Governor in Council may designate any trade, or consider an industry's request for trade designation. Designated trade courses are continually being reviewed and revised by a trade committee consisting of employers and employees engaged in that trade, together with institutions and apprenticeship supervisors.



Labour

In Canada responsibility for labour relations is shared among the federal, provincial and territorial governments. Broadly defined, the federal jurisdiction includes banks, international and interprovincial transportation and communications, broadcasting, grain elevators and most Crown Corporations. Enterprises not regulated by the federal government come under the jurisdiction of the province or territory where they are located. Approximately 90 per cent of employees in Alberta are regulated by provincial legislation.

Like every other jurisdiction in Canada, Alberta has legislation that sets minimum employment standards.

The Employment Standards Act establishes minimum standards for hours of work, payment of wages, overtime pay, minimum wages, vacations, vacation pay, general holidays, general holiday pay, termination of employment, maternity benefits, and the employment of young persons. While employers may set higher standards, they cannot give employees less than the minimum standards.

The Industrial Wages Security Act gives employees in the lumbering industry added wage protection. Responsibility for administering the Employment Standards Act and the Industrial Wages Security Act rests with Alberta Labour and further information concerning the requirements of the legislation may be obtained by contacting the department.

The principal legislation regulating labour relations in Alberta is the Labour Relations Act. In addition there are other acts that regulate labour relations for specific groups of employees. These acts include: The Colleges Act, which regulates labour relations between boards of governors of post-secondary educational institutions and academic staff

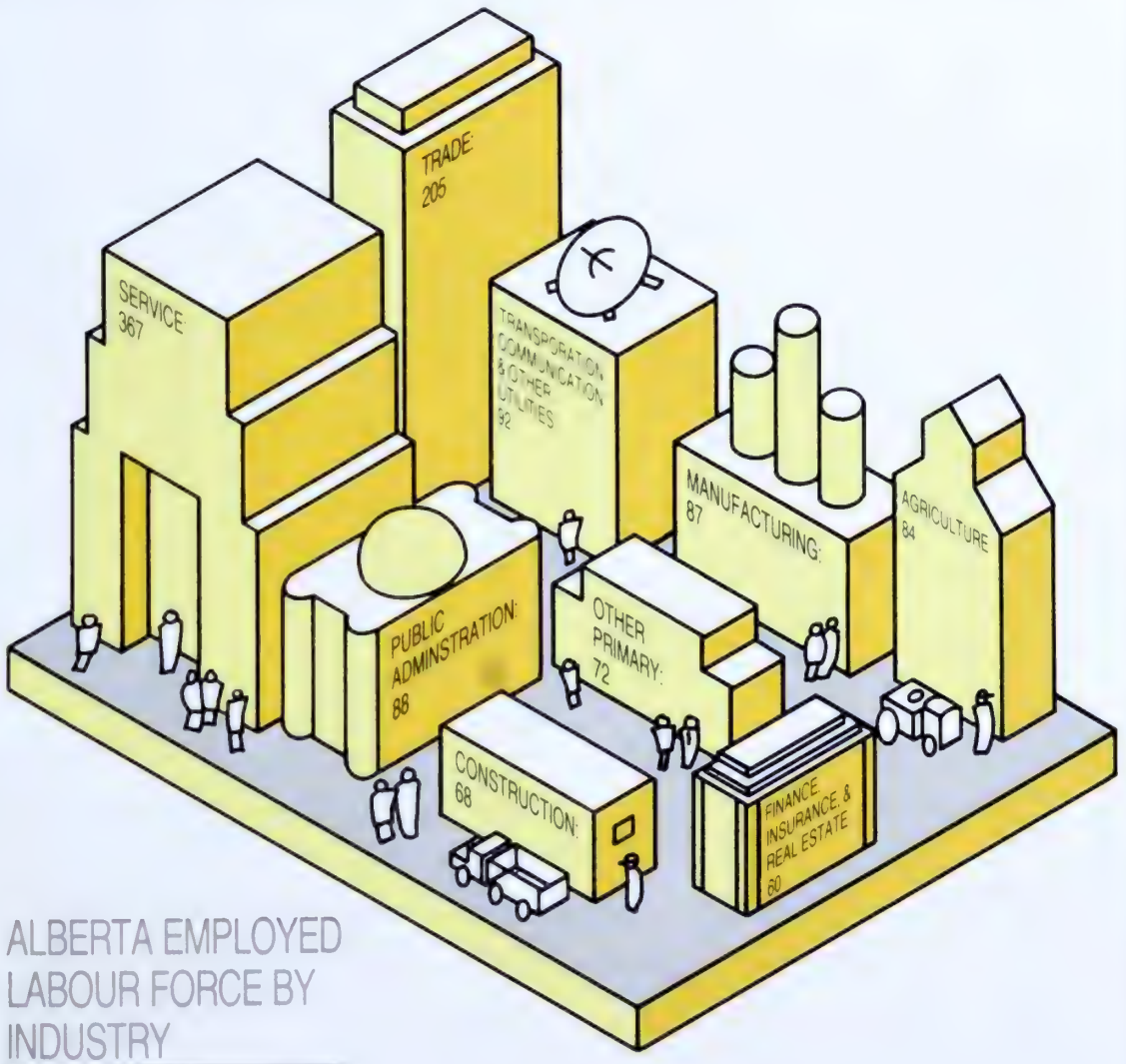
employees; the Police Officer's Collective Bargaining Act which regulates labour relations between municipalities and policemen; and the Public Service Employee Relations Act, which regulates labour relations for civil servants employed by the province of Alberta. Policemen, firefighters, hospital employees and provincial public servants are prohibited from striking.

As outlined in the Labour Relations Act, the Labour Relations board is an independent, quasi-judicial tribunal that is responsible for the administration of procedures that regulate labour relations between employers and trade unions under the jurisdiction of the Act. Pursuant to the Act, the Board processes applications for certification and the revocation of trade unions as bargaining agents, regulates the procedure by which a trade union may proceed to a lawful strike or an employer to a lawful lockout. The Board also deals with the registration of employers' organizations in the construction industry and with unfair labour practices.

Pursuant to the Labour Relations Act, Alberta Labour also provides assistance to unions and management in resolving collective bargaining disputes through mediation. Mediation takes place at the request of either or both parties in a dispute or by order of the Minister of Labour.

The Employment Pension Plans Act requires that all pension plans covering employees in Alberta comply with certain standards and must be registered with the Superintendent of Pensions, who is director of the Employment Pensions Branch of Alberta Labour. The Employment Pensions Branch is also responsible for investigating complaints and answering enquires from employees concerning their pension plans.

The Individual's Rights Protection Act prohibits discrimination in the areas of race, colour, religious beliefs, ancestry, age, sex, marital status, place of



ALBERTA EMPLOYED LABOUR FORCE BY INDUSTRY
1985 THOUSANDS

origin or physical disability with respect to employment practices and employment advertising. Termination of employment or discrimination with respect to terms and conditions of employment solely because of pregnancy would be a contravention of the Act.

The Act is administered by the Alberta Human Rights Commission.

Alberta has the fourth largest labour force in Canada with only Ontario, Quebec and British Columbia ranking higher. In Alberta in 1985 there were 1,248,000 persons over the age of 15 working or looking for work, either part-time or full-time. This figure includes 718,000 males and 530,000 females. Alberta continues to have the highest participation rate of any province in Canada, which means that a large percentage of Alberta's population is in the work force. Approximately 72 per cent of Albertans over the age of 15 are working or willing to work.

As a proportion of the work force, Alberta's trade union membership is one of the lowest in Canada. According to a 1985 survey, approximately 288,000 people belonged to trade unions in Alberta.

The largest union membership is in the public sector, which includes provincial and municipal employees as well as health care, education and utilities workers. Outside the public sector, the commercial and industrial construction industries are the most heavily unionized.

For data on this subject please refer to tables 8.20 to 8.26 in the Appendix

Education

Alberta's educational system ranges from pre-school programs through to university postgraduate study. Included among the goals of the system are the teaching of basic subjects and skills, the creation of a skilled workforce, and the provision of opportunities for acquiring knowledge.

Pre-school programs are not universal in Alberta, but are becoming increasingly important. For those attending classes for grades one to twelve, education is provided on a "no-charge" basis. It is now customary for students to complete basic schooling in preparation for further education. High school curricula include matriculation (which leads to university or college), general diploma and vocational programs or combinations of these. There are academic high schools, vocational high schools and composite high schools.

The Advanced Education system in Alberta currently has thirty-four post-secondary institutions. This includes four universities, three technical institutes, eleven public colleges, four private colleges, four Alberta Vocational Centres, the Alberta Petroleum Industry Training Centre, the Community Vocational Centres, and the Banff Centre. In addition, there are six hospital-based Schools of Nursing, five community consortia and eighty five further education councils.

During the 1984-85 period, post-secondary institutions served more than 600,000 people through full-time, part-time, apprenticeship, credit, non-credit, and further education programs.

In this period, approximately 130,000 people were served by the four universities and the Banff Centre. Approximately 40,000 of these were in full-time attendance at the Universities of Alberta, Calgary and Lethbridge. The University of Alberta in Edmonton is the oldest and largest of the four. The University of Calgary, at first a separate campus of The University of Alberta, became autonomous in 1966.

The University of Lethbridge was added to the system in 1967. These three universities fulfill the traditional roles of a university in teaching, research and in providing public service. A wide range of programs at the undergraduate and graduate level is provided. Athabasca University was established in 1970 to provide part-time home study opportunities. The Banff Centre was established in 1933. It is a professional training centre for arts, management studies, environmental studies and conferences of all kinds.

The Southern Alberta Institute of Technology in Calgary, established in 1916, and the Northern Alberta Institute of Technology in Edmonton, established in 1963, offer a wide variety of vocational, business, technology-oriented programs as well as technical training programs for apprentices. Westerra Institute of Technology in Stony Plain is the third and newest technical institute in Alberta. It started its first intake of apprenticeship students in 1983-84. In 1984-85 the total number of individuals served, in all these institutions, was in the order of 87,000 including credit, non-credit, correspondence and apprenticeship programs. For the same period full time enrolment was approximately 11,000.

The three technical institutes prepare students for career-oriented employment in industrial services and have a primary role in creating and maintaining an adequate supply of well-trained manpower.

There are eleven Public Colleges in Alberta. They are situated in Calgary, Edmonton, Fairview, Fort McMurray, Grande Prairie, Lethbridge, Lloydminster/Vermilion, Medicine Hat, Olds and Red Deer. Courses offered include one and two year career-oriented certificate/diploma programs, university transfer and apprenticeship programs at some colleges and a wide



range of further education and community services programs. In 1984-85 over 233,000 people were served by the public colleges. Of these, about 16,000 students were in full-time attendance.

In 1985-86, Alberta College of Art became the newest public college after separating from the Southern Institute of Technology. It offers four year diploma programs in arts.

There are four private colleges which are affiliated to the University of Alberta. They are Camrose Lutheran College in Camrose, Canadian Union College in College Heights and Concordia College and the King's College in Edmonton. They offer a variety of programs as well as university transfer programs. In 1984-85 1,400 people were served in the university transfer programs.



head regions. Approximately 1,700 people were served by the five consortia in 1984-85.

There are currently 85 Further Education Councils in the Province. These councils, consisting of members from institutions, agencies and local volunteers, administer the provision of non-credit programs within their communities. In 1985 a total of about 339,000 adults participated in about 23,000 courses throughout the province.

Through the major post-secondary institutions, consortia and further education councils, people living virtually anywhere in the province can gain access to educational opportunities.

For data on this subject please refer to tables 8.27 and 8.28 in the Appendix

Four Alberta Vocational Centres are located in Calgary, Edmonton, Grouard and Lac La Biche. These institutions provide a comprehensive range of needed quality adult education programs concentrating on adult basic education, skill training and services responsive to local, regional and provincial needs. To complement them, about twenty smaller units known as Community Vocational Centres provide training courses and other educational services to remote and isolated communities in North Central Alberta. In 1984-85 total registrations at the Alberta Vocational Centres and the Community Vocational Centres were approximately 17,500. The Alberta Petroleum Industry Training Centre in Edmonton serves the training needs of people employed or seeking employment, in the province's oil well drilling industry. Registrations in 1984-85 were approximately 460.

In 1982-83, the Foothills Hospital in Calgary, the Royal Alexandra Hospital, the University of Alberta Hospital and the Misericordia Hospital in Edmonton became members of the Advanced Education system. These hospital based schools of nursing offer diploma programs in nursing and nursing refresher programs. Alberta Hospital in Ponoka and Alberta Hospital in Edmonton joined the system in 1983-84. Psychiatric nursing programs are offered at these institutions. In 1984-85 about 1,700 individuals were served by these six institutions.

In order to provide service to areas of the province that are not in close proximity to post-secondary institutions, five community consortia were established in 1981-82. Community Consortia are associations of institutions working cooperatively with local citizens, to provide post-secondary credit programs leading to a diploma, degree or certificate being awarded by a participating institution or a recognized licensing body. They are located in Big Country, Chinook, Peace River, Pembina and Yellow-

Communications

The sheer size of Canada has made modern communications a vital element in the country's development. Alberta is no exception to this national pattern.

Broadcast media have extensive coverage. The average household has more than one radio. There are 46 AM and 17 FM radio broadcast originating stations, as well as numerous rebroadcast stations. A total of 11 television stations, based in Edmonton, Calgary, Lethbridge, Lloydminster, Medicine Hat and Red Deer are in operation. All but two of these stations are affiliated with nation-wide networks. Rebroadcast stations provide virtually province-wide coverage Nearly every household now owns a television set; almost 90 per cent have a colour set. Major centres receive cable television connecting them with American networks. The Alberta government operates a radio and television network (ACCESS) which emphasizes educational programming.

The more remote regions of northern Alberta benefit from the communications satellite "Anik", through which the Canadian Broadcasting Corporation provides radio and television programming to sparsely populated areas throughout northern Canada

Ten daily, and 160 weekly newspapers are published. The dailies are published in Calgary, Edmonton, Lethbridge, Lloydminster, Medicine Hat, Red Deer, Grande Prairie and Fort McMurray. They have a total circulation in excess of 548,000 copies, reaching almost 85 per cent of all households in the province. Weekly newspapers report a gross circulation of over one million copies

Alberta's magazine publishing trade is also growing as commercial printing plants improve and upgrade their equipment. Regular publications serve such specialized fields as the oil industry, agriculture, leisure, and business development. A number of the publications have international circulation.

Albertans are among the country's greatest telephone users with over one million subscriber lines in service. Alberta Government Telephones, a Crown corporation, owns over 771,000 lines. The City of Edmonton operates Edmonton Telephones, which has nearly 423,000 lines

A radio-telephone system provides much-needed contact with isolated areas not serviced by ground telephone lines. A microwave network, owned by Alberta Government Telephones (a partner in the Trans Canada Telephone system) and by Canadian National-Canadian Pacific Telecommunications, extends to almost every area of the province. Both have national and international links. CN-CP Telecommunications provides wire service in many Alberta centres.

In addition to the communication services outlined above, there are numerous privately-owned film companies, art houses, advertising agencies, printing operations and publishers.



The Land

Geography

With a total area of over 66 million hectares, Alberta is approximately the combined size of West and East Germany, the Netherlands, Belgium, Luxembourg, Switzerland, Denmark and Sweden in Europe or of the 13 northeasternmost states of the United States.

Alberta is one-fifteenth of Canada in area. Situated in the northwestern part of North America between 49 degrees and 60 degrees north latitude and 110 degrees and 120 degrees west longitude, it is 1,217 kilometres in length from north to south, and between 293 and 650 kilometres in width from west to east. Within this area, there is a great diversity and abundance of natural resources.

The northeastern corner of Alberta is largely an ice-scoured plain, a part of the Canadian Shield. The potential for development of agriculture and forestry is limited because of climate, topography and location. Wildlife and recreation have extensive rather than intensive use.

Almost all of the southwestern half of mountains and foothills ridges has been glaciated several times. Some of the outlying foothill ridges and most of the higher peaks were not over-run by moving ice, but most areas exhibit striking features of alpine glaciation. Alpine glaciers and icefields, indicating an approximate balance between winter snowfall and summer melting, are present today on some of the higher mountains. Post-glacial erosion and deposition, including landslides where unstable formations were left unsupported, and the irregular clothing of slopes by vegetative cover, have added to the scenic diversity.

Mountain peaks range up to 3,747 metres in elevation and the larger mountains are rugged, with local relief of up to 2,130 metres. Major passes are between 1,128 and 1,830 metres in elevation. The larger broad glaciated valleys have shallow slopes, thus allowing relatively easy road and rail development into and through the mountains. Use conflicts are developing in major highway belts and in potential mining areas but only small parts of this large region are intensively used. Much of the mountainous region lies in National and Provincial Parks and Provincial Forest Reserves. The latter are zoned for watershed, wildlife, recreation, mining, commercial grazing, forestry and multiple purpose uses.

The greater area of Alberta is part of the Interior Plain of North America and is underlain by sedimentary rock. Younger, softer formations predominate at surface levels. Rock weathering has produced relatively fine textured soil materials. Continental glaciation from the Hudson Bay region extended to the foothills where it joined with ice of alpine origin. Only the upper parts of the Cypress and Porcupine Hills were not covered by ice.

Some surfaces have been eroded by ice and meltwaters, but most have received materials borne by them. Large amounts of soil material of Shield origin,



including the harder stones and boulders present, are widely distributed. Yet most of the drift is of relatively local origin. An important feature of deglaciation was that the general slope of the land was toward the melting continental ice mass. Meltwaters and run-off from land surface were ponded against the ice front at successively lower levels across the plains. The clays which were widely deposited are among the best parent materials for soil development and the flat to gently undulating terrain is excellent for agricultural activities. Undulating to rolling till plains and many kinds of moraines are present, and include many hummocky moraines deposited by "dead ice". The rougher topography and numerous sloughs in moraine areas are disadvantageous for agriculture, but cultivation is not uncommon because the soil is often relatively stone-free and erosion problems are not as great as in more humid regions. Moraine areas are among the best for wildlife, particularly the numerous migratory waterfowl and shore birds. Gravel deposits are widely available.

The general surface slope is from west to east in southern Alberta and from southwest to northeast in northern Alberta. Elevations range from approximately 1,220 metres in the foothill valleys to less than 215 metres in the northeast near the margin of the Shield. Numerous uplands such as the Cypress, Porcupine, Swan, Clear, and Buffalo Head Hills and the Caribou, Birch and Pelican Mountains rise as high as 760 metres above the neighbouring plains. The local relief within the plains, has been accentuated by the incision of river valleys 30 to 230 metres in depth.

The Peace-Athabasca delta complex is the world's largest fresh water delta. Wildlife is abundant and the area has long been important in the fur trade Other deltas are smaller, but many were formed on the shores of lakes in the past and most stabilized sand plains have developed on their materials.

Perceptions of flatness can be formed in some of the more extensive prairie plains, particularly in the south where there are few trees to accentuate relief. These perceptions are intensified by the clean dry air which permits one to see great distances. In reality, however, topographical diversity is quite great within the plains as evidenced by the rough foothills and mountain skyline in the west.

Alberta now has almost 30 per cent of the occupied agricultural land of Canada. This agricultural land area is almost three times that of Ontario, four times that of Quebec and over nine times that of British Columbia. In each of these other provinces, land is used that would be considered submarginal in Alberta.

The soil patterns of Alberta reflect the influences of soil forming factors — parent materials, slope and drainage, climate and vegetation — acting through time and modified by human use. The effects of the ice-age are still pronounced and local variations are numerous. Post-glacial erosion and deposition, weathering of bedrock and of drift of various origins, and organic build-up are all reflected in soil patterns.

The brown, dark brown and black soils and the dark grey wooded soils have developed under grass cover in semi-arid and sub-humid climates. Water surpluses are inadequate for much soil leaching; thus humus and fine mineral soil are abundant in fertile surface horizons. Water deficits are greatest in the brown soil zone where vegetative cover densities have not been great enough for major humus development. Cultivation ranges from about one-quarter of the brown soil zone to two-thirds of the black soil zone. Only one-third of the dark grey wooded soils are cultivated, largely because these soils are less fertile. Because more humid climates prevailed in recent centuries, tree cover has replaced the grass, and soil qualities have been degraded to some extent. The more humid climate is advantageous for crop growth, particularly in light of growing emphasis on forage crops. Much of the recent expansion of cultivated land has been in these areas.

Grey wooded soils, developed largely under mixed forest cover, are the most widespread. Only 5 to 10 per cent of these soils are cultivated, mainly because of frost and drainage limitations and low fertility. Leaching has not been as great as in more humid forest regions because moisture surpluses are minimal and most soils are moderately high in lime content.

Podzol soils are present in some of the most humid upland areas. Such soils are more acidic and are rarely cultivated. Solonetizic soils have developed largely in grassland areas where parent materials are saline. Some are cultivated but they are less productive than adjoining grassland and parkland soils. Organic soils are widespread in the more humid forest areas but, because better soils are available elsewhere, few have been drained or cultivated. Permafrost is a factor in drainage limitation in some northern areas.

Cultivation is expanding in Alberta, partly in new land (largely in the Peace River region) and partly within settled areas where farmers are clearing, draining, and otherwise intensifying their use of areas not previously developed. Reversion of cropland to forest and rough pasture is also taking place and some of the better lands are being converted to urban and industrial uses. There is a greater potential for expansion of cultivated land areas in Alberta than in any other province but the better undeveloped lands are of limited extent.

Geology

Except for its extreme northeast corner, Alberta forms part of the western Canada sedimentary basin, a large area extending from the International Boundary along the southern margin of the Prairie Provinces to the Mackenzie River delta bordering the Arctic Ocean.

The region is underlain by sedimentary rock formations of different ages deposited in ancient seas and low-lying alluvial or coastal plains which covered much of western Canada during the Paleozoic and Mesozoic eras (500 million to 60 million years ago). During early Tertiary time, about 50 million years ago, the western margin of the basin was uplifted, and the strata were folded and faulted to form the Rocky Mountains and foothills. Since then, the geologic history of western Canada has involved erosion of the plains and mountains rather than deposition in a sedimentary basin (except for a brief period during the Pleistocene epoch when unconsolidated glacial sediments of various types were deposited on the bedrock surface)

Three major physiographic divisions reflect the composition and structure of the bedrock formations of the province. The smallest of these divisions — the Canadian Shield — occupies about 15,540 square kilometres in the extreme northeast corner of Alberta, adjacent to Lake Athabasca. The Shield consists of ancient igneous and metamorphic rock of Precambrian age — mainly granite, gneiss, and various types of schist — which, in other regions of Canada, contain important deposits of metallic minerals. Some showings of uranium and molybdenum minerals have been found in the Shield rocks, but no commercial mineral deposits have been developed as yet. Nevertheless, only part of this region has been mapped in detail, and considerable scope exists for metallic minerals exploration.

Most of Alberta lies within the Interior Plains, a region of generally low to moderate relief underlain by nearly flat-lying sedimentary strata of variable composition and origin. In the northeast, Devonian carbonate and evaporite rocks underlie the lowlands about the margin of the Canadian Shield, dipping gently southwest under the cover of younger Cretaceous strata. The devonian rocks contain large deposits of lime-



stone, gypsum, and salt on or near the surface, and the salt deposits continue at greater depths beneath much of east-central Alberta. Also, the more deeply buried Devonian strata of northwestern and central Alberta contain much of the province's gas and oil reserves. They are found in ancient reef-rocks that grew in the seas covering the area during Devonian time.

Cretaceous and Tertiary strata comprise the bedrock over the larger part of the Plains, forming a series of sandstone and shale formations which extend from the International Boundary in the south to the British Columbia and Northwest Territories boundaries in the northwest. In general, the formations dip gently to the south and west, with the result that successively younger strata form the bedrock towards the margin of the Rocky Mountain Foothills. Cretaceous strata of the Plains contain much of Alberta's mineral wealth, including the Athabasca and Cold Lake oil sands, the subbituminous (thermal) coal deposits of central and southern Alberta, and a significant portion of the conventional oil and gas reserves. They also contain major deposits of metallic and industrial minerals, including iron, bentonite, and kaolin clays.

The Rocky Mountains and Foothills form a belt of folded and faulted sedimentary strata from 40 to 200 kilometres wide, extending along the southwestern margin of the province. The strata range in age from Precambrian to Tertiary. In general, the Foothills are composed of sandstone and shale formations of Jurassic and Cretaceous ages, and the Rocky Mountains proper are composed of carbonate and quartzite formations ranging in age from Precambrian to Triassic. The Foothills contain important reserves of sour gas and high grade bituminous coal, much of which is of coking quality. Vast reserves of limestone and dolomite are found within the front ranges of the Rocky Mountains, and scattered deposits or showings of other industrial and metallic minerals have been reported from this region.

Except for some of the higher ridges in the Rocky Mountains and the Cypress Hills in the southeast, the province was covered by thick ice sheets during the Pleistocene epoch, (approximately 10,000 to 15,000 years ago). Consequently, much of the land surface is covered by unconsolidated glacial sediments ranging from a few inches to several hundred feet in thickness. The deposits vary widely in composition, consisting of sand, gravel, clay and unsorted mixtures of all three materials (till). Although glacial deposits obscure or otherwise hinder development of underlying bedrock mineral deposits in some areas, they provide much of the sand and gravel used in the construction industry, and also some of the clay and silica sand used in manufacturing such products as brick and fiberglass.

Climate

Alberta has what is commonly known as a continental climate: long, cold winters and mild summers. A combination of several factors determine the climate.

The continental interior location of the province results in greater heating in summer and cooling in winter, and in less precipitation than is present in marine areas. The mountain barriers to the west accentuate these patterns by inhibiting the flow of mild, moist air from the Pacific, and by easing the flow of cold air from the north.

In summer the flows of air and the resulting temperature patterns are modified by the drop in land surface elevations as one moves eastward and northward. The ever-changing storm and air-mass movement patterns are based largely on the pressure contrasts resulting from these controls. The latitude of the province is another important factor, as the length of the summer day counteracts the decreasing altitude of the sun as one moves northward.

In January, the average temperature is about -8 degrees Celsius in the southwestern foothills. It becomes colder as one moves northward and eastward to about -25 degrees Celsius in the northeast corner of the province. These cold northern temperatures occur because cold polar continental air dominates this section. Although cold air at times covers the whole province, it is frequently replaced in the southwest by mild air from the Pacific. This Pacific air has become even warmer through the release of the heat of condensation from the heavy snowfalls in the mountains, and by adiabatic heating as it descends along the eastern slopes of the Rocky Mountains, the warm "chinook" winds of southern Alberta are dry, and significant melting and evaporation take place. The coldest temperatures are frequently associated with low wind speeds, low moisture content, and clear skies; thus the cold is not felt so bitterly as in more humid, windy areas.

In July the temperature gradients are shallow with the longer days and lower elevations of the north largely compensating for the difference in latitude. For most of the province, the mean temperatures lies between 15 degrees and 20 degrees Celsius.

In spring and fall, air mass contrasts are greater than in July; the frost-free period is often shortened by surges of cold polar air. The average frost-free period is over 120 days in the southern lowlands and is as short as 60 to 70 days in northern and more elevated areas. Because of the tendency for cold air to lie in lowlying areas, the length of the frost-free period can



vary greatly even on an individual farm. The growing season varies with location in the province and is longer in the south. The growth potential index ranges from over 3,000 degree days at Medicine Hat to about 1,600 degree days in the coolest agricultural areas (The number of degree days of growth potential is derived by totalling the number of degrees above a base temperature of 5 degrees Celsius for each day in the growing season). The large areas of Alberta with favourable landforms and heat sufficient for cereal grains and other crops, plus the smaller southern areas with sufficient heat for irrigated specialty crops, give the province a great potential for agriculture

Average annual precipitation is about 300 mm in the Milk River Basin, and along the Red Deer River as it approaches the Saskatchewan boundary. It is over 500 mm along the eastern foothills and, in some mountain locations, over 1,500 mm. In the hill country above 54 degrees north latitude, annual precipitation is as high as 550 to 600 mm. In winter, snow is usually associated with a low pressure centre located in Alberta or in the upslope to the north of the low. Summer rain usually comes either in the form of showers and thunderstorms formed because of surface heating, or from the storms along a cold front as it sweeps southward over the province.

Low-pressure centre "storm tracks" pass from west to east across Alberta. In winter, such storm tracks are predominantly south of the border, but they shift northward into southern Alberta in spring, and into central and northern Alberta in summer. The tracks fluctuate appreciably and there may be wide variations from "normal" precipitation in any given season or year. In summer, warm, moist, tropical air from the Gulf of Mexico occasionally moves into Alberta and relatively heavy rains are experienced, especially in the south and east. In some years, these rains are widespread, in others, absent.

Summer drought of varying intensity is widespread, particularly in the southeastern plains.

Winter snowfall is relatively light on the plains. With frequent chinooks in the southern plains and

foothill areas, winter grazing by livestock and game is possible. The melting of snow in spring results in increased soil moisture levels and in the greater part of annual stream runoff. Both vary because of fluctuations in snowfall, snowdrift distribution, winter melting and evaporation (largely by sublimation), infiltration capacities, frost pattern, surface detention storage, and other factors. Some of these factors can be modified by tillage and watershed management practices.

Summer precipitation in most agricultural areas is exceeded by the potential combined evaporation and transpiration by plants; spring moisture surpluses are usually exceeded by the deficits of late summer and fall. On the drier plains, summer fallowing is common in alternate years. The deficiencies of crop years may be reduced by as much as 60 mm of extra soil moisture from the years under fallow. Facilities are available for irrigating over 400,000 hectares of the drier plains.

In many forest areas, water surpluses are larger and water deficits small or absent in most years. In drier years, growth is inhibited and fires set by lightning are widespread. Surplus and deficiency patterns are closely reflected in many other vegetation, soil and agricultural patterns. For example, erosion by rain and running water is much less of a problem than in more humid areas of Canada.

For data on this subject please refer to table 9.1 in the Appendix

Water Resources

Water is found in relative abundance in many areas of the province although climatic differences result in considerable variation in supply from one region to another. Approximately 64 per cent of the land area of Alberta lies within the Mackenzie River system. The river basins that form the Mackenzie system in Alberta (the Athabasca, Peace, Slave and Hay rivers) account for 87 per cent of mean annual river discharges leaving the province. The Churchill and Saskatchewan-Nelson river systems (the Beaver, North Saskatchewan, Battle, Red Deer, Bow, Oldman and South Saskatchewan rivers) cover 35 per cent of the province's land area but contribute only 13 per cent of mean annual river discharges.

Based on mean annual values, the streamflow originating within Alberta is 67.7 billion cubic metres (54.9 million acre feet) per year. An additional 67.3 billion cubic metres (54.6 million acre feet) per year flow in from British Columbia, Saskatchewan and the United States. Less than 10 per cent of water originating in Alberta is withdrawn annually for local use. The other source of water supply is groundwater, which is highly variable in both quantity and quality.

Seasonal variations in flow are characteristic of Alberta rivers and streams. In most years, the greater part of water volume is derived from melting snow. In some years, heavy rains, particularly if they occur in spring or early summer before soil moisture supplies have been depleted, contribute to high water yields.

In the drier southern plains, the average annual water yield is less than 25 mm; in some locations it may range from zero in many years to as much as 110 mm in years with heavy snowmelt and spring rain runoff. Streamflow is flashy, turbid and undependable. In the west-central and northern plains, the average surpluses are from 25 to 100 mm. These also vary greatly from year to year but they are more likely to provide for more dependable full season flow. Local hill areas within the plains have larger and more sustained yields. The Cypress Hills give rise to many streams of regional importance for irrigation and stockwatering. Other hills, especially in the north, have much larger yields than the adjoining plains.

The largest and most dependable streamflow rises in the mountain and foothills region where average annual yields range from 100 to 1,300 mm. In dry years, as much as 90 per cent of the streamflow of the North and South Saskatchewan basin originates in the mountain and foothills region which has only 15 per cent of the basin area. In wet years, the proportion of flow from this region may be less than 70 per cent, largely because of the higher rainfall on the plains. This flow is more dependable and it has a better seasonal distribution and better quality than that of the plains areas. Reservoir storage is contributing to water regime improvement for hydropower, urban, industrial and irrigation purposes.

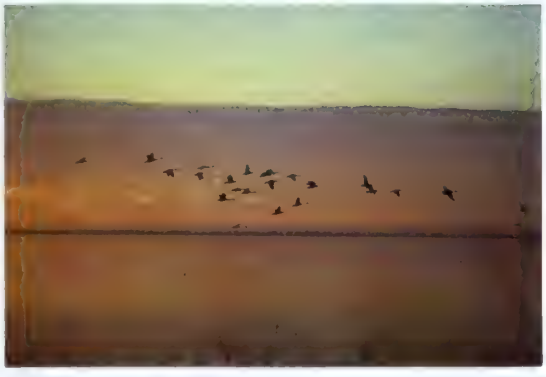
Rivers and lakes are large and numerous by the standards of many drier regions of the world; yet little more than two per cent of the streamflow of Canada rises in Alberta. The province has slightly more than two per cent of the freshwater lake area of the country. The area occupied by lakes is usually listed as being 16,800 square kilometres, but this does not include many thousands of temporary water bodies, small potholes, marshes and muskeg areas that in spring would have a much larger cumulative water surface. Many of these dry up in summer and fall. Others, in addition to many of the larger lakes, have seasonal fluctuations in water level.

Alberta has over half the consumptive use of diverted water in Canada, largely because it has the greatest area under irrigation. Secondary recovery of oil and gas is resulting in significant volumes of water being pumped into bedrock formations. Oil sands



development, with its major losses of steam and evaporated water from plants and tailings ponds (which remain open throughout the winter) is resulting in the growing use of water. With careful water management for a wide range of uses, Alberta will be able to meet requirements well into the future. Regional and seasonal deficiencies in the drier years, especially in the south, involve a wide range of management techniques oriented both to increasing supplies and to using limited supplies more efficiently

For data on this subject please refer to table 9.2 in the Appendix



Government Services to Business



A number of government agencies are equipped to gather, analyze, compile and publicize information for the purpose of furthering the industrial development of the province. Several are prepared to give assistance, financial and practical, in selecting industrial sites, starting or expanding production, developing markets, supplying technical information, developing products or production processes, and in industrial design.

Following is a listing, with brief services' resumés, of provincial and federal government organizations which provide assistance related to industrial development.

Though not listed here, many cities and other municipal corporations also provide comprehensive services with greatest emphasis on securing best suitable site selection. For more complete information, please contact the agency through the address given.

As an additional and unique service the government has established the Regional Information Telephone Enquiries (R.I.T.E.) network. It is designed to provide businesses and citizens of Alberta with a convenient, free of charge means of securing information from their government.

The system provides a convenient means for contacting the right department or individual in government by eliminating the costs of long distance calls and the need to enter into exchanges of correspondence. Detailed instruction as to use of the system is included in all regional telephone directories.

Provincial Government Services

Agri-Food Development Branch

The Agri-Food Development Branch links agricultural producers and food processors with the marketing sector of Alberta Agriculture. Priority is given to market oriented development in crops, feedstuffs, meat, dairy, and livestock genetics areas

Agricultural producers, processors, industry and commodity organizations both public and private are served with the overall objective of encouraging and supporting industry based efforts that address market opportunities and long term viable development for Alberta based production and processed commodities

Key areas include assistance to address market oportunities for Alberta based agricultural production and processed commodities; identify methods to address those opportunities; support development initiatives vital to the future of the agri-food industry; encourage active industry based efforts which address market realities and recognize longer term development opportunities; and review and evaluate marketing systems, infrastructure problems and industry issues of vital concern

Agri-Food Development Branch
Alberta Agriculture
J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Agricultural Processing Development Branch

The Branch provides a variety of technical, economic and information services to the feed, food and agricultural processing industry in Alberta. The Branch programs respond to the need for improved awareness of new technology markets; to the need for productivity improvements; to the need to encourage new product, processing and packaging development; and to the need to find practical ways to increase research utilization in the Alberta food industry.

Information and financial assistance is available to those wishing to expand and upgrade existing facilities, or to construct new facilities in Alberta; to develop new products and processes which enhance a firm's position in the industry or marketplace and to other agencies involved in the development function.

Agricultural Processing Development Branch
Alberta Agriculture
J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, T6H 5T6

Alberta Agricultural Development Corporation

The Agricultural Development Corporation provides financial assistance to primary producers of agricultural products, the owners of associated businesses and agricultural industries.

With respect to Agribusiness Lending programs, the Corporation may provide loan guarantees and direct loans to assist new agribusiness to become established and assist existing agribusiness to expand in order to increase the further processing of agricultural products and provide necessary services to primary producers, thus helping to make rural centres more viable

Agribusiness enterprises which process primary products or provide a necessary service to farming enterprises and which are unable to obtain reasonable cost financing from other sources may apply for assistance under these programs. The Corporation provides financial advisory services and where need and repayment ability are established, guarantees loans or provides direct loans.

Loans are available to agricultural businesses for buildings, land, equipment, permanent improvements, operating funds and debt consolidation. Common applications are owners of abbatoirs, feed mills, alfalfa plants and veterinary clinics.

Manager, Agribusiness Lending
Alberta Agricultural Development Corp.
4910 - 52 Street
Camrose, Alberta
T4V 2V4

Alberta Bureau of Statistics

The Alberta Bureau of Statistics provides businesses, organizations, individuals and governments with economic, demographic and social statistics on the province and communities with Alberta.

The information is available in Bureau publications, reports and pamphlets and through the direct answering of specific statistical information requests. The Bureau also maintains and provides a computerized source of provincial statistics via ASIST, the Alberta Statistical Information System.

In addition to the data collected and compiled by the Bureau, a full range of information from Statistics Canada and a variety of other federal and provincial sources is available upon request.

Alberta Bureau of Statistics
Alberta Treasury
7th Flr., Sir Frederick W. Haultain Bldg.
9811 - 109 Street
Edmonton, Alberta
T5K 0C8

Alberta Microelectronic Centre

The Alberta Microelectronic Centre is a non-profit organization. Its mandate is to promote and mobilize the use of microelectronic technology in Alberta manufactured products. The Centre has recently established ASIC (Application Specific Integrated Circuit) design and fabrication facilities and provides IC design and prototyping services to industry and universities.

Industrial education has a high priority at the Centre. Custom courses, seminars and workshops, ranging from basic awareness to technically advanced programs, provide the vehicles for disseminating information.

The Centre's people and facilities form a unique alliance of industrial, university and government commitment, dedicated to developing a strong microelectronic infrastructure. IC design and prototyping, feasibility studies, project management, microprocessor based system design and initial product development are only a few of the areas in which the Centre can provide assistance.

The long term goal of the Centre is to help make Alberta industry internationally competitive, through the implementation of leading edge microelectronic technology.

Calgary Design Facility
#200, 1620 - 29th Street N.W.
Calgary, Alberta
T2N 4L7

Edmonton Fabrication Facility
#118, 11315 - 87th Avenue
Edmonton, Alberta
T6G 2C2

Alberta Oil Sands Technology and Research Authority

The Alberta Oil Sands Technology and Research Authority (AOSTRA) is an agency of the Government of Alberta, established in 1974. The original responsibility of AOSTRA was to encourage and support the development of technology that would lead to efficient commercial production of bitumen from the deep oil sands of Alberta by in situ methods. Responsibilities have been extended to include research and technology development for improvements in surface mining and separation of bitumen from mined oil sands, improved upgrading and refining of bitumen and heavy oils, and enhanced recovery from conventional and heavy petroleum reservoirs. AOSTRA is also concerned with environmental acceptability of the production and processing technologies being developed.

AOSTRA welcomes applications for financial support for research projects and technology development projects that deal with any aspects of oil sands or heavy oils and also those concerned with enhanced recovery from conventional oil reservoirs. AOSTRA sometimes publicly solicits applications for work on specific projects.

The Registrar, Alberta Oil Sands
Technology and Research Authority
500 Highfield Place
10010 - 106 Street
Edmonton, Alberta
T5J 3L8

Alberta Opportunity Company

The Alberta Opportunity Company is a crown corporation which provides financial and management assistance to stimulate the establishment of new businesses and assist in the expansion of existing enterprises. Financing is in the form of loans, or guarantees of loans of other lenders, which are repayable with interest. A.O.C. may provide financial assistance where conventional financing is not

available, particularly for small businesses in small communities.

With the exception of resource based and primary agricultural industries, public utilities, finance companies and suppliers of residential housing other than tourist accommodation, most types of business operating for gain or profit are eligible for assistance.

To meet the wide range of needs of the business community, A.O.C. maintains a highly flexible policy

Alberta Opportunity Company
P.O. Box 1860
Ponoka, Alberta
T0C 2H0

Alberta Research Council

The Alberta Research Council is dedicated to promoting responsible economic development in Alberta through science and technology. It provides a full range of services: pure and applied research; analytical and testing laboratories; industrial engineering problem-solving; international information searching. In 1986 it had a staff of about 600 working in laboratories and offices in Edmonton, Nisku, Devon, Red Deer, Calgary and Lethbridge. It operates under the authority of the Alberta Research Council Act.

The Alberta Research Council has identified seven major areas of research and assistance: service to industry; industrial technologies; oil sands; energy processing; natural resources; biotechnology; advanced technologies

The service to industry program provides short-term advisory and technical services to manufacturing and processing companies in Alberta. Services include computer searching of scientific and technical literature published throughout the world on a wide range of topics. These services and financial assistance for research projects are funded by the National Research Council

The industrial technologies program includes forest products testing and research, physical and chemical analysis, and product and materials testing

The oil sands program includes research on in situ recovery of bitumen and heavy oil and on oil sands geology, for clients in industry and government.

Liquefaction, pyrolysis, coal chemistry, coal gasification, agglomeration, catalysis and coal geology make up the energy processing program.

The natural resources program includes the province's survey work in geology, soils and water, as well as research in atmospheric sciences and transportation.

A main feature of the biotechnology program is a pilot plant for the use of industry in fermentation research on the scale up of biotechnological processes to commercial production. Other work in the program includes research on developing crops resistant to low temperatures, nitrogen fixation and the use of tissue culture techniques compared to traditional plant breeding methods.

The advanced technologies program is designed to allow professional staff to work with companies in adopting information and automation technologies, such as expert systems and robotics.

One of the Alberta Research Council's prime functions and highest priorities is to work closely with industry to provide business with the research capability required but not available in the private sector. Through this industrial strategy, Alberta businesses can develop new industrial opportunities in the province. The Alberta Research Council will consider proposals on joint research ventures and contract projects or on other ways of doing business.

Alberta Research Council
P.O. Box 8330, Station F
250 Karl Clark Road
Edmonton, Alberta
T6H 5X2

Alberta Research Council
3rd Floor
6815 - 8 Street N.E
Calgary, Alberta
T2E 7H7

Business Analysis Branch

The business analysis branch of Alberta Agriculture supports the department's emphasis in the areas of marketing, further processing and rural development. The branch conducts grant/loan evaluations and inspections under specified departmental financial assistance programs (primarily the Agricultural Processing and Marketing Agreement) and provides business management services to agribusiness and agricultural organizations.

Business Analysis Branch
Alberta Agriculture
#304, J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Centre for Frontier Engineering Research

C-FER is an incorporated, non-profit research organization focussing on research related to the safe and economical development of Canada's frontier petroleum resources. The Centre is committed to working closely with Canadian industry and government in order to facilitate increased productivity in frontier development.

C-FER provides the focal point for the research and development necessary to promote Canadian participation in the development of petroleum resources on the geographical frontiers of the Arctic and offshore and on the technological frontiers of enhanced oil recovery operations.

In addition to enhancing the research efforts of Canadian industry, C-FER has its own on-going research programs. Early work comparing international regulatory standards has led to the publication of reports on design guidelines for both steel and concrete fixed offshore structures. Current priorities in the offshore structures program focus on toughness of welded plate, preferential corrosion, and composite ice-resisting walls. Work in downhole tubular systems is aimed at tubular joints (both computer modelling and experimental), sucker rod/tubing wear in deviated wells, and casing/formation interaction in thermal recovery wells.

C-FER is also capable of carrying out appropriate research contracts.

President,
Centre for Frontier Engineering Research
C-FER Building
University of Alberta Campus
Edmonton, Alberta, T6G 2E2

Coal Research and Technology Office

The Office of Coal Research and Technology was established to provide the means to assist, encourage and promote research and development relating to technological methods for the exploration, recovery, transportation, preparation, storage and utilization of Alberta coal resources in a manner that is efficient, economical, safe and environmentally acceptable; identification, monitoring, acquisition and adaptation to Alberta conditions and coal resources of research and development in other jurisdictions; cooperation with and among other governments, industry, universities and other institutions or agencies.

The primary focus is to identify, investigate and develop those technologies considered likely to be commercially important in the next decade and which will enhance the competitiveness of Alberta coals in international markets; minimize the environmental impact of the production and utilization of coal in Alberta; or result in new uses for Alberta coals.

Conservation and Renewable Energy Research
Scientific and Engineering Services and Research Division
2nd Floor, Pacific Plaza
10909 Jasper Ave.
Edmonton, Alberta
T5J 3M8

Conservation and Renewable Energy Research and Development Program

The Conservation and Renewable Energy Research and Development Program provides funding contributions to contract research and development focussing on the demonstration of the technical feasibility and economic potential of new and promising technologies in the areas of Energy Conservation in Buildings, Energy Conservation in the Industrial and Commercial Sector with particular focus on Waste Heat Recovery, and Renewable Energy Technology with emphasis on Wind Energy for agricultural applications.

Conservation and Renewable Energy Research
Scientific and Engineering Services
and Research Division
2nd Floor, Pacific Plaza
10909 Jasper Ave.
Edmonton, Alberta
T5J 3M8

Farming for the Future

Funding assistance is available for research and demonstration projects aimed at improving agricultural productivity. The specific objectives of the program are to improve net farm income and to enhance the long-term viability of Alberta's agricultural industry.

Financial support is provided for approved research projects submitted by research institutions, farmers and private firms engaged in agricultural research and development.

Research Division
Alberta Agriculture
Room 306, J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Food Laboratory Services Branch

The Branch, through its food laboratories in Edmonton and Airdrie, provides a wide range of analytical, consulting and other services to all sectors of the Alberta food industry, food exporters and various government agencies concerned with food production, processing inspection, transportation, retail trade and consumers

Food Laboratory Services Branch
Alberta Agriculture
5th Floor, O.S. Longman Building
6909 - 116 Street,
Edmonton, T6H 4P2
and
Regional Office
Alberta Agriculture
Airdrie, Alberta

Food Processing Development Centre

The Food Processing Development Centre is a modern facility consisting of pilot plant processing areas, and product development and evaluation laboratories. The purpose of the Centre is to increase the processing capability of Alberta's food processors to meet the needs of the market place through application of new technology and development of new products, processes and packaging systems

The Centre is equipped to serve the broad areas of meat, dairy, oilseed, specialty foods, vegetables, prepared foods and cereal products. Pilot scale equipment offers excellent capabilities to provide controllable variation in process conditions and accurate monitoring of process stages and product characteristics. The equipment simulates that used by industry and includes specialized equipment for developmental work

Projects undertaken by Centre personnel can include informational and technical assistance, laboratory product development, sensory evaluation, pilot plant development, or on-site processing plant assistance. Projects can also entail the data base researching of product or process, developing the product, producing test market quantities, and ultimately assisting with industrial production.

Extended time or equipment use and extensive material usage may be billed to clients. Results remain the property of the client and are kept in confidence.

Food Processing Development Centre
Alberta Agriculture
P.O. Box 1217
Leduc, Alberta
T9E 2Y7

General Safety Services

In Alberta a number of safety programs dealing with equipment installation standards are administered by the General Safety Services division of the Department of Labour. The branches in the Division include: Electrical Protection, Plumbing and Gas Safety Services, Elevator and Fixed Conveyances, Building Standards, Boilers and Pressure Vessels and Fire Prevention. The co-ordinated delivery of safety programs through a single agency provides a more uniform approach which can be beneficial to industry.

General Safety Services
Alberta Labour
Room 805
10808 - 99 Avenue
Edmonton, Alberta
T5K 0G5

Industry Development Division

The purpose of the Division is to enhance the performance and development of existing firms and industries and to assist in the establishment of new companies in the following sectors: industrial products and services (metal fabrication); food industries; forest industries; chemicals (including petrochemicals); energy process industries; metals and minerals; aerospace industries; electronics; engineering and construction; plastic fabrication; rubber products; textiles; consumer products, furniture and the film industry. The Division also works with financial institutions, venture capitalists, entrepreneurial immigrants, etc to encourage both foreign and domestic investments, with emphasis on joint ventures involving Albertans

Services provided are: counselling industry in such matters as site location, sources and use of financing, business planning, government regulations and services, market data sourcing etc.; identifying sector opportunities and stimulating action to realize them and providing a coordinating and catalytic linkage between the academic and government scientific and engineering community and industry on matters related to the commercialization of technology The Division implements, administers and evaluates the economic development programs, and proposes, where appropriate, alternative sector development policies, strategies and programs.

The Division is also charged with implementing the Alberta content policy on private projects and the "Accelerated Program of Support for Alberta Companies Supplying Goods and Services to Government Projects," as well as administering the Product Development Program.

Industry Development Division
Alberta Economic Development & Trade
Floor 10, Sterling Place
9940 - 106 Street
Edmonton, Alberta T5K 2P6

Market Development Division

The Division provides services to the agricultural and food industries to facilitate successful domestic and export sales. Financial programs and services available to Alberta companies and associations cover the entire marketing spectrum: analysis and identification of specific market opportunities; establishing contacts amongst marketers, buyers and sales agents; advising industry on merchandising methods, tariffs, health regulations, pricing, labeling requirements, transportation, financing and other key aspects of export and domestic sales; planning, arranging and participating in outgoing sales and incoming buying missions; assistance with participation in domestic and international trade shows and other promotional activities; identification of possible joint venture partners in Alberta and in the marketplace; setting up demonstration projects in the marketplace; development of market strategies and plans for specific markets; conducting market research and consumer profile studies; assistance to consulting firms in obtaining technical service contracts or international projects.

Market Development Division
Alberta Agriculture
J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Northern Development Branch

Along with economic matters the Branch, as provincial coordinator of the Canada/Alberta Northern Development Subsidiary Agreement and the support group for the Northern Development Council, is concerned with the social aspects of northern Alberta development. These include manpower training, community infrastructure, education, law enforcement, housing conditions, health services, transportation and communications. The objective is to achieve balanced socio-economic growth in northern Alberta.

Northern Development Branch
Bag 900-14
206 Provincial Building
9621 - 96 Avenue
Peace River, Alberta
T0H 2X0

Reclamation Research Program

The Alberta government recognizes the importance of developing land reclamation technology so that the mineral resources can be developed in conjunction with other land uses. The Reclamation Research Technical Advisory Committee, established in 1978, coordinates all provincial government funding for reclamation research. In conjunction with industry participants it continues to identify successful means of combining mineral development with agriculture, forestry, wildlife habitat and watershed protection.

Conservation and Renewable Energy Research
Scientific and Engineering Services and Research Division
2nd Floor, Pacific Plaza
10909 Jasper Ave.
Edmonton, Alberta
T5J 3M8

Rural Development Division

The Rural Development Division fosters the strengthening of the economic viability of the rural community by providing development grants to firms to process in Alberta those nutritive products which have or may achieve through development of new technology, a competitive position in national or export markets. Financial assistance is provided through the Nutritive Processing Agreement (NPA), jointly sponsored by Alberta Agriculture and the federal Department of Regional Industrial Expansion, to producers of processed products of nutritive value to animals or humans, to processing operations that produce products of plant or animal origin and to private research and development facilities engaged in research on nutritive products or processing activities. The financial assistance available helps defer the cost of capital equipment purchase for new and modernized or expanded food processing industries.

Rural Development Division
Alberta Department of Agriculture
3rd flr.,
7000 - 113 Street
Edmonton, Alberta
T6H 5T6

Small Business Division

The objectives of the Small Business Division are to increase the survival rate and profitability of small businesses and to increase the rate of new business formation. These objectives are accomplished through the provision of management assistance and information to small business throughout the province, assistance in community economic development and in business site location. Programs are operated using the principle of self-help.

The Division has two branches, one specializing in Small Business Assistance and the other in Regional Business Development. Business counselling activities provided by experienced business analysts located throughout the province include assistance, and direction to those in the process of establishing a new business or seeking to improve current operations information dissemination plays a major role. A management assistance program offers the services of private sector consultants to business operators on a one-to-one basis. Business workshops may be arranged to allow prepared seminars to be presented to large groups. Business development representatives provide assistance in the areas of community economic development and business site locations to businesses, entrepreneurs, investors, municipalities, business organizations and all other active participants in the regional development process.

Small Business Division
Alberta Economic Development and Trade
9940 - 106 St
Edmonton, Alberta
T5K 2P6

Small Business Equity Corporations Program

The Small Business Equity Corporations Program is designed to stimulate the formation of pools of equity capital throughout the province. These pools are privately organized, privately capitalized and privately managed. The Government of Alberta does not directly provide investment capital for small business but rather it provides a 30% incentive to the private sector to invest in small business

The Small Business Equity Corporations Program is providing $61 million in incentives to investors which has created a pool of equity capital of approximately $200 million that could be available for investment in small businesses

Within the Small Business Equity Corporations Program is a "matching sector" whose aim is to coordinate investors with those small businesses seeking equity financing.

Small Business Equity Corporations
Program Office
17th Floor
10025 Jasper Avenue
Edmonton, Alberta
T5J 3Z3

Strategic Planning Division

The division provides strategic direction on economic development issues including opportunities for diversification, trade, and small business; develops appropriate policies for encouraging economic development in the province; and coordinates the department's policy positions on economic development issues. Staff analyze and evaluate the economic impact on the Alberta economy of changing international, national, and provincial economic conditions; federal and provincial policies and programs; and proposed new economic initiatives. The economic research activities of the department are undertaken and coordinated by the division which also evaluates and develops provincial positions on federal and provincial economic programs. Short and long term assessments on economic development prospects for Alberta and the implications for individual sectors are prepared. The division also prepares and delivers business and economic information for, and to, the public and private sectors

Strategic Planning Division
Alberta Economic Development & Trade
9th Floor, Sterling Place
9940 - 106 Street
Edmonton, Alberta
T5K 2P6

Technology, Research and Telecommunications

The Department of Technology, Research and Telecommunications (TRT) promotes the diversification and growth of the provincial economy by developing new initiatives in technology driven and knowledge-intensive industries. This is accomplished by providing the infrastructure, information exchange, financial and other assistance necessary to support the development of technology and the commercialization of applied research in Alberta

The department works closely with the private sector, advanced educational institutions, other government departments and Crown agencies. The goal is to encourage research, development and subsequent commercialization of high technology in the province -- particularly high technology that can be marketed outside the province's boundaries.

Within the province, TRT works toward ensuring that Albertans are served by high quality, reliable and affordable communications systems and information services. The department actively promotes the development of such infrastructures throughout Alberta.

Investment is an important step in the process of strengthening any research environment to aid in the growth of technology intensive industries. As well as creating the environment for Alberta high-tech industry to grow and expand which will provide new and varied employment opportunities, TRT attracts new investment in areas which build on our strengths. These include: medical products and pharmaceuticals, biotechnology and bio-engineering, electronics and microelectronics, telecommunications, computers and software, advanced materials, cold region technology adaptations, and other areas in the natural sciences and engineering.

Alberta Technology, Research &
Telecommunications
12th Floor, Pacific Plaza
10909 - Jasper Avenue
Edmonton, Alberta
T5J 3M8

Trade Development Division

The purpose of the division is to assist Alberta's industrial and business consulting sectors to expand export sales activity. It works directly with individual companies or groups of companies to sell products and services outside Alberta. Staff members assist companies in developing export sales. Activities of the division include identifying export opportunities, organizing incoming buyer and outgoing sale missions, organizing and co-ordinating participation in trade expositions and providing specific expertise on foreign export projects.

Trade Development Division
Alberta Economic Development
11th Floor, 9940 - 106 Street
Sterling Place
Edmonton, Alberta
T5K 2P6

Transportation Services Division

The division has the responsibility for reviewing and recommending programs, strategies and policies which will assist in the efficient transportation and distribution of Alberta products as well as the promotion of efficiency in passenger transportation. The division advises industrial and trade groups with respect to transportation services and rates, as well as regulations and legislation pertaining to transportation matters.

Transportation Services Division
Alberta Economic Development
9th Floor, Sterling Place
9940 - 106 Street
Edmonton, Alberta
T5K 2P6

Federal Government Services

Business Information Centre

Business Information Centres are a new concept in business government communication. Set up and operated by the Government of Canada, the centres are designed to make it easier for business people to get in touch with appropriate federal government officials. The centres are staffed by personnel who can cut through "red tape" and provide the business person with a speedy answer to questions about government services, programs, opportunities, problems, policies, people, regulations, or other business matters affecting them.

Telephone 420-2952 in Edmonton or 1-800-661-3977 toll free elsewhere in Canada.

Department of Regional Industrial Expansion

The Department of Regional Industrial Expansion (DRIE) offers Canadian businesses market, trade and business information and advice. Financial assistance can also be made available to eligible manufacturers, processors and tourism operators.

Through the Industrial and Regional Development Program (IRDP), DRIE provides grant, loan and loan guarantee assistance to industry. In eligible areas of Alberta, IRDP can assist, up to a maximum of 45% of

the costs of eligible activities, manufacturing, processing and tourism industries to: expand or modernize their existing production facilities, better market their products, or develop new products or processes.

DRIE administers the Small Businesses Loans Act (SBLA), a loan guarantee program to help new or small business obtain loans, to a maximum of $100,000, for a variety of capital improvement purposes. With interest set at one per cent above prime lending rates, SBLA loans are negotiated directly with chartered banks, Alberta Treasury Branches or other lenders designated under the Act.

The Program for Export Market Development (PEMD) helps incorporated Canadian businesses to develop, increase and sustain their activities by sharing with them the costs of specific export marketing efforts PEMD provides incentives to: encourage businesses that have not exported previously to begin export marketing, and encourage established exporters to expand their activities in new markets

DRIE maintains the Business Opportunities Sourcing System (BOSS), a data base on Canadian companies and their products. Application forms for businesses wishing to be included in the BOSS inventory are available at any of their offices

Tourism Canada specialists in DRIE offices are the contact points for information on the Canadian government's tourism marketing and development program

In addition to administering the national programs of the department, the Alberta offices provides three assistance programs under the Canada/Alberta Economic and Regional Development Agreement These subsidiary agreements, cost-shared and administered with the Province of Alberta, offer financial assistance to Alberta entrepreneurs in three areas:

a) Tourism Development - for facility and product development; alpine ski facility development; market development; training and professional development; industry and community support; and opportunity analysis and evaluation.
b) Agricultural Processing and Marketing - for development assistance; feasibility studies; and research and development assistance
c) Northern Development - for expanded diversity of economic development in the north; assistance for northern residents to develop and access employment opportunities; and facilitation of the development of community and regional infrastructure to improve the long-term viability of business and industrial initiatives

Department of Regional Industrial Expansion
Regional Office,
Cornerpoint Building, Ste 505
10179 - 105 Street
Edmonton, Alberta T5J 3S3

Calgary Office,
Harry Hays Building, Ste 630
220 - 4th Ave., S.E.
Calgary, Alberta T2P 3C3

Export Development Corporation

The Export Development Corp. (EDC) provides a wide range of insurance, guarantee and loan services in order to facilitate and develop Canadian export trade.

EDC facilities are provided to enhance the ability of firms selling Canadian goods and services to compete effectively abroad. There is a no minimum value of export business required to qualify for support.

Suite 2140,
Bow Valley Square 3
255 - 5th Avenue S.W.
Calgary, Alberta T2P 3G6

Federal Business Development Bank

The Federal Business Development Bank (FBDB) exists to promote and assist most types of businesses in Canada at either the start-up stage or at some other stage in their development. It pays particular attention to the needs of small and medium-sized businesses.

The Federal Business Development Bank offers three principal services to Canada's business community: financial services (loans, loan guarantees and financial planning), investment banking, and management services such as counselling, training and information

The FBDB complements the services offered by financial institutions in the private sector by providing funds for worthwhile projects that are not available elsewhere on reasonable terms and conditions. (See also Business Information Centre which is operated by the FBDB.)

3015 - 12th Street, N.E.
Calgary, Alta.
T2E 7J2

Professional Building
Suite 500
740 - 4th Avenue S.
Lethbridge, Alta.
T1J 0N9

Riverside Office Plaza
Suite 100
4919 - 59th St.
Red Deer, Alta.
T4N 6C9

606 Principal Plaza
10303 Jasper Ave.
Edmonton, Alta.
T5J 3N6

10135 - 101st Avenue
P.O. Box 10
Grande Prairie, Alta.
T8V 0Y4

Statistics Canada

Staff of the regional office provide statistical information needed by governments, industry, and the general public to understand the social and economic conditions of the province and country.

The Advisory Service Division helps people identify, obtain, and effectively use statistical information. The Division promotes the use of statistics through visits, talks and meetings to assist potential users with data problems.

Statistics Canada
Room 215
11010 - 101 Street
Edmonton, Alberta
T5H 4C5

Research and Development Parks

Calgary Research and Development Authority

The Calgary Research and Development Authority (CRDA) operates two Research Parks, the 105 acre University Research Park, located contiguous to the University of Calgary, and the 1,066 acre Research and Development Park, a few kilometres to the northwest. Both offer developed lots to companies seeking an attractive environment designed to encourage research and research based manufacturing. Land is leased in the two parks at attractive rates. Development is controlled to protect the tenants' investment.

For companies seeking to situate smaller projects in the same environment, the CRDA plans a multi-tenant research building in the University Research Park for occupancy early in 1988. The building is designed economically to accommodate activities ranging from wet laboratories through to electronics manufacturing.

The Authority also operates the Calgary Advanced Technology Centre, a coordinated program designed to assist the development, growth, and success of small technology oriented business. This is accomplished by providing: a favorable environment in which young companies can start, grow, and flourish; management assistance; access to sources of funding; and support and encouragement for entrepreneurs. The incubator environment is particularly appropriate for the start-up and healthy growth of advanced technology companies.

The Calgary Research and Development Authority is a tripartite initiative of the University of Calgary, the City of Calgary, and the Chamber of Commerce. It was established in 1981 with the goal of creating a centre of high technology industry. The Authority's activities are overseen by a sixteen member board composed largely of local business people appointed by the three partners plus representatives from the provincial government.

Calgary Research and Development Authority,
140, 6815 - 8 Street N.E.,
Calgary, Alberta T2E 7H7

Edmonton Research and Development Park

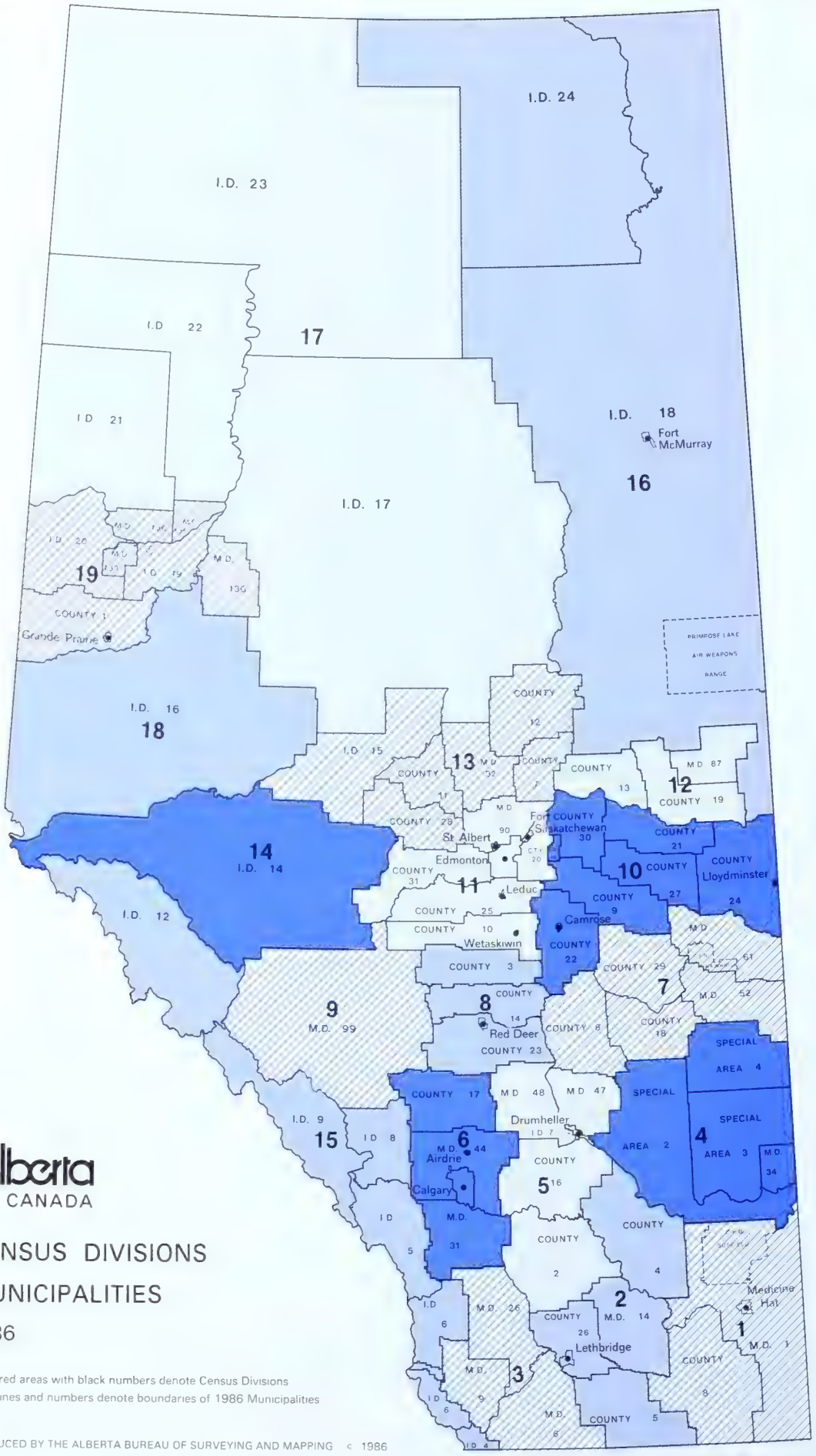
The Edmonton Research and Development Park was opened in 1981 to provide an attractive setting for new research and development facilities. Located in south Edmonton, the Park offers convenient access to the International Airport, the university campus, downtown, and major highways. The current Park area comprises 64.75 hectares (160 acres) with an adjoining 64.75 hectares (160 acres) owned by the Alberta Research Council.

Land in the Park has been developed with a view to recovering the costs of such development only, and is accordingly priced very competitively. Services are provided for sewer, water, natural gas, power and roads. Land is offered either on long-term leases or sold to occupants outright. The Park will also build to suit individual tenants, or lease space in a Multi-Tenant Research building owned by the Research Park Authority.

While research and development is the principal theme of the Park and all tenants will be expected to demonstrate minimum commitments in this area, a broad range of other activities are permitted, including prototype development, light manufacturing, marketing and administration.

General Manager
Edmonton Research & Development Park Authority
1621 Canadian Commercial Bank Tower
10104 - 103 Avenue
Edmonton, Alberta T5J 0H8

Appendix



Alberta
CANADA

CENSUS DIVISIONS
MUNICIPALITIES
1986

Coloured areas with black numbers denote Census Divisions
Solid lines and numbers denote boundaries of 1986 Municipalities

PRODUCED BY THE ALBERTA BUREAU OF SURVEYING AND MAPPING © 1986

TABLE 1.1

ECONOMIC ACCOUNTS - CONSOLIDATED INCOME AND OUTLAY ACCOUNTS - ALBERTA 1975 AND 1980-85 (MILLIONS OF DOLLARS)

INCOME ACCOUNT	1975	1980	1981	1982	1983	1984	1985
Wages, Salaries and Supplementary Labour Income	7,366	16,259	19,909	22,248	22,562	22,946	24,809
Military Pay and Allowances	135	146	169	196	222	246	267
Net Income of Non-Farm Unincorporated Business	654	1,016	1,142	1,378	1,744	1,932	2,088
Net Income of Farm Operators from Farm Production	710	920	717	572	457	457	451
Corporation Profits	4,052	9,007	8,109	8,533	10,819	12,398	13,561
Interest and Miscellaneous Investment Income	2,116	7,171	8,625	9,816	10,211	11,128	11,671
Inventory Valuation Adjustment	-178	-459	-531	-298	-188	-206	-170
Net Provincial Income at Factor Cost	14,855	34,060	38,140	42,445	45,827	48,901	52,677
Capital Consumption Allowances	2,028	4,993	6,118	7,141	8,019	8,950	9,639
Business	1,781	4,516	5,547	6,459	7,206	8,012	8,624
Government	247	477	571	682	813	938	1,015
Gross Domestic Product at Factor Cost	16,883	39,053	44,258	49,586	53,846	57,851	62,316
Indirect Taxes	2,104	2,570	4,095	4,327	4,258	4,874	4,770
Subsidies	-235	-562	-591	-1,806	-2,625	-3,194	-2,881
Residual	-96	942	1,347	764	-734	-1,778	-2,196
Gross Domestic Product at Market Prices	18,656	42,003	49,109	52,871	54,745	57,753	62,009
OUTLAY ACCOUNT	**1975**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**
Sales to Persons	7,851	17,086	20,334	22,417	23,636	24,630	26,878
Sales to Government	2,561	5,263	6,550	7,652	8,301	9,204	9,698
Gross Fixed Capital Formation	5,214	14,914	19,178	18,434	13,894	12,118	13,061
Government	684	1,432	2,207	2,864	2,287	1,888	2,006
Residential Construction	2	6	7	7	19	9	12
Non-Residential Construction	605	1,215	1,918	2,551	2,029	1,632	1,751
Machinery and Equipment	77	211	282	306	239	247	243
Business	4,530	13,482	16,971	15,570	11,607	10,230	11,055
Residential Construction	940	2,867	3,160	2,452	1,788	1,029	1,137
Non-Residential Construction	2,084	6,992	8,676	8,345	6,090	5,776	6,651
Machinery and Equipment	1,506	3,623	5,135	4,773	3,729	3,425	3,267
Value of Physical Change in Inventories	81	156	-23	-827	-297	-254	99
Non-Farm	66	-21	23	-744	-97	193	180
Farm	-10	131	-14	-81	-226	-417	3
Grain in Commercial Channels	25	46	-32	-2	26	-30	-84
Exports	9,118	20,604	23,255	24,987	26,132	27,858	28,966
Imports	-6,265	-15,079	-18,838	-19,028	-17,656	-17,582	-18,889
Residual	96	-941	-1,347	-764	735	1,779	2,196
Gross Domestic Product at Market Prices	18,656	42,003	49,109	52,871	54,745	57,753	62,009

Source: Alberta Bureau of Statistics

TABLE 1.2

ECONOMIC ACCOUNTS - GROSS DOMESTIC PRODUCT IN CONSTANT (1971) DOLLARS - ALBERTA, 1975 AND 1980 - 1985 (MILLIONS OF DOLLARS)

	1975	1980	1981	1982	1983	1984	1985
Sales to Persons	5,732	8,021	8,406	8,344	8,394	8,479	9,018
Sales to Government	1,724	2,221	2,374	2,457	2,434	2,586	2,617
Gross Fixed Capital Formation	3,442	6,225	7,276	6,546	4,879	4,250	4,466
Residential Construction	538	934	960	761	547	319	362
Non-Residential Construction	1,747	3,500	4,073	3,859	2,861	2,622	2,913
Machinery and Equipment	1,157	1,791	2,243	1,926	1,471	1,309	1,191
Value of Physical Change in Inventories	43	21	-2	-240	-77	-52	17
Non-Farm	15	-10	31	-220	-21	60	54
Farm and Grain in Commercial Channels	28	31	-33	-20	-56	-112	-37
Exports	3,446	3,912	4,066	3,845	3,877	4,000	3,931
Imports	-4,246	-6,234	-7,173	-6,889	-6,218	-5,912	-6,120
Residual	52	-310	-399	-200	181	424	511
Gross Domestic Product in Constant (1971) Dollars	10,193	13,856	14,548	13,863	13,470	13,775	14,440

TABLE 1.3

GROSS DOMESTIC PRODUCTS AT FACTOR COST - ALBERTA - 1975 AND 1980 - 1985 (MILLIONS OF DOLLARS)

	1975	1980	1981	1982	1983	1984	1985
Agriculture	1,109	1,899	1,952	1,905	1,901	2,012	2,130
Forestry	25	49	50	53	59	60	66
Mining	3,539	9,746	9,482	11,568	13,238	15,106	16,767
Manufacturing	1,363	2,860	3,565	3,274	3,357	3,608	3,947
Construction	1,464	2,766	3,589	3,718	3,318	2,968	3,138
Transportation	1,195	2,651	2,972	3,306	3,583	3,789	4,057
Utilities	374	849	1,138	1,595	1,744	1,960	2,151
Trade	1,650	3,476	4,045	4,192	4,291	4,568	5,039
Finance	2,745	7,676	8,922	10,124	11,640	12,497	13,116
Finance - Excluding Natural Resource Royalties	1,342	3,752	4,838	5,574	6,855	7,438	8,269
Services	2,446	5,227	6,290	7,209	7,671	8,084	8,602
Public Administration	973	1,854	2,253	2,642	3,044	3,199	3,303
Gross Domestic Product at Factor Cost	16,883	39,053	44,258	49,586	53,846	57,851	62,316

Source: Alberta Bureau of Statistics

TABLE 1.4

COMPARISON OF GROSS DOMESTIC PRODUCT, ALBERTA AND CANADA - 1968-1985

YEAR	GROSS DOMESTIC PRODUCT		ALBERTA G.D.P. AS PERCENT OF CANADA	PER CAPITA G.D.P.	
	ALBERTA	CANADA		ALBERTA	CANADA
	(MILLIONS OF DOLLARS)			(DOLLARS)	
1968	5,767	73,837	7.8	3,784	3,567
1969	6,366	81,057	7.9	4,083	3,860
1970	6,950	87,071	8.0	4,357	4,088
1971	7,866	96,034	8.2	4,832	4,452
1972	8,907	106,785	8.3	5,375	4,898
1973	11,122	125,384	8.9	6,581	5,688
1974	15,633	149,883	10.4	9,078	6,702
1975	18,656	168,010	11.1	10,493	7,402
1976	21,579	195,539	11.0	11,740	8,504
1977	24,435	214,941	11.4	12,780	9,236
1978	28,314	238,368	11.9	14,293	10,136
1979	35,052	271,718	12.9	17,057	11,442
1980	42,003	305,668	13.7	19,609	12,713
1981	49,109	351,468	14.0	21,953	14,439
1982	52,871	371,235	14.2	22,799	15,071
1983	54,745	402,583	13.6	23,326	16,178
1984	57,753	435,876	13.2	24,576	17,349
1985	62,009	469,797	13.2	26,308	18,525

TABLE 1.5

PERSONAL INCOME ALBERTA - 1975 AND 1980 - 1985 (MILLIONS OF DOLLARS)

	1975	1980	1981	1982	1983	1984	1985
Wages, Salaries and Supplementary Labour Income	7,366	16,259	19,909	22,248	22,562	22,946	24,809
Military Pay and Allowances	135	146	169	196	222	246	267
Net Income of Non-Farm Unincorporated Business Including Rent	654	1,016	1,142	1,378	1,744	1,932	2,088
Net Income Received by Farm Operators from Farm Production	713	742	795	546	365	284	366
Interest, Dividends and Miscellaneous Investment Income	952	3,137	4,400	4,766	4,721	5,363	5,566
Current Transfers From Corporations	21	46	59	46	50	51	55

TABLE 1.5 continued

	1975	1980	1981	1982	1983	1984	1985
From Government Transfer Payments to Persons	1,125	2,199	2,612	3,731	4,894	5,039	5,419
Capital Assistance	29	63	44	94	154	159	130
From Non-Residents	20	46	50	56	58	60	62
Personal Income	11,015	23,654	29,180	33,061	34,770	36,080	38,762
Plus: Adjustment on Grain Transactions	-3	178	-78	26	92	173	85
Equals: Total Income	**11,012**	**23,832**	**29,102**	**33,087**	**34,862**	**36,253**	**38,847**

TABLE 1.6

PERSONAL INCOME AND PERSONAL DISPOSABLE INCOME ALBERTA AND CANADA 1967 - 1985

	Personal Income		Alberta as per cent of Canada	Per Capita Personal Income		Personal Disposable Income		Per Capita Personal Disposable Income	
	Alberta	Canada		Alberta	Canada	Alberta	Canada	Alberta	Canada
	$'000,000		%	$	$	$'000,000		$	$
1967	3,675	50,579	7.27	2,466	2,482	3,181	43,123	2,135	2,116
1968	4,124	55,677	7.41	2,706	2,690	3,528	46,820	2,315	2,262
1969	4,604	61,804	7.45	2,953	2,943	3,848	50,911	2,468	2,424
1970	4,968	66,633	7.46	3,115	3,129	4,057	54,009	2,544	2,536
1971	5,542	74,092	7.48	3,404	3,435	4,513	59,943	2,772	2,779
1972	6,276	83,767	7.49	3,788	3,842	5,134	68,100	3,098	3,124
1973	7,472	97,832	7.64	4,421	4,438	6,126	79,719	3,625	3,617
1974	9,029	116,867	7.73	5,243	5,226	7,285	94,545	4,231	4,228
1975	11,015	136,205	8.09	6,195	6,001	8,942	110,996	5,029	4,890
1976	12,659	155,142	8.16	6,887	6,747	10,121	125,309	5,507	5,450
1977	14,436	171,516	8.42	7,550	7,370	11,610	138,307	6,072	5,943
1978	16,610	191,498	8.67	8,385	8,143	13,593	156,070	6,862	6,636
1979	19,864	215,367	9.22	9,666	9,069	16,180	175,956	7,873	7,410
1980	23,654	244,712	9.67	11,043	10,178	19,238	199,740	8,981	8,308
1981	29,180	288,529	10.11	13,044	11,853	23,370	233,357	10,447	9,587
1982	33,061	317,426	10.42	14,257	12,887	25,724	255,954	11,093	10,391
1983	34,770	336,984	10.32	14,815	13,542	27,131	270,056	11,560	10,852
1984	36,080	362,086	9.96	15,353	14,412	28,394	290,037	12,083	11,544
1985	38,762	392,406	9.88	16,445	15,473	30,449	313,264	12,919	12,353

Source: Alberta Bureau of Statistics

TABLE 1.7

PRIVATE AND PUBLIC INVESTMENT IN ALBERTA - 1957-1986 (MILLIONS OF DOLLARS)

	Primary Industries and Construction	Manufacturing	Utilities & Communication	Trade Finance & Commercial Services	Housing	Institutional Services and Government Departments	Capital and Repair Expenditures		Total
							Construction	Machinery & Equipment	
1957	336.0	82.7	210.3	64.6	154.0	223.1	707.2	363.5	1,070.7
1958	321.3	90.5	204.5	75.1	218.6	218.3	786.7	341.6	1,128.3
1959	381.5	100.1	190.5	83.5	216.8	244.2	818.7	397.9	1,216.6
1960	393.4	84.3	219.4	91.2	177.4	254.9	815.5	405.5	1,220.6
1961	443.8	56.9	242.6	79.5	195.3	251.8	876.6	393.3	1,269.9
1962	383.1	72.7	184.8	83.3	229.5	282.7	820.1	416.0	1,236.1
1963	462.1	64.8	216.7	101.2	221.8	243.6	862.0	448.2	1,310.2
1964	518.3	83.2	239.2	110.6	214.2	256.0	920.0	501.6	1,421.6
1965	644.1	105.6	283.4	119.2	215.2	296.8	1,093.5	570.8	1,644.3
1966	734.1	103.3	360.3	129.6	209.7	407.3	1,276.5	667.8	1,944.3
1967	746.7	113.4	393.6	149.2	244.6	446.6	1,347.9	746.2	2,094.1
1968	749.3	143.7	420.6	153.3	309.0	397.2	1,443.1	730.0	2,173.1
1969	842.4	135.4	438.7	196.2	400.6	386.1	1,607.4	792.0	2,399.4
1970	878.1	183.5	495.9	186.5	350.0	392.4	1,709.1	777.3	2,486.4
1971	946.1	186.5	471.6	179.7	492.3	442.0	1,845.8	872.4	2,718.2
1972	1,006.9	245.9	500.7	280.2	538.1	426.1	1,979.4	1,018.5	2,997.9
1973	1,252.5	394.1	557.2	404.4	587.6	471.9	2,333.8	1,333.9	3,667.7
1974	1,692.1	415.9	796.6	471.3	694.1	636.2	2,961.3	1,744.9	4,706.2
1975	2,290.6	441.0	1,086.9	559.5	849.4	825.3	3,920.6	2,132.1	6,052.7
1976	3,084.1	591.7	1,344.9	725.9	1,699.8	807.6	5,197.5	3,056.5	8,254.0
1977	3,523.0	661.3	1,410.1	849.3	1,833.4	971.4	6,124.5	3,169.0	9,293.5
1978	4,015.0	910.4	1,436.8	1,252.3	2,426.8	1,109.0	7,411.5	3,738.8	11,150.3
1979	5,385.4	1,072.0	1,671.4	1,994.7	2,647.0	1,412.6	9,373.8	4,809.3	14,183.1
1980	7,154.1	979.4	2,285.8	2,261.7	2,479.2	1,843.3	11,694.4	5,309.1	17,003.5
1981	8,011.8	2,297.0	3,035.8	2,960.2	2,830.0	2,711.3	14,477.6	7,368.5	21,846.1
1982	7,340.9	2,881.5	3,105.0	2,486.1	2,319.4	3,511.7	14,402.2	7,241.7	21,644.6
1983	6,063.4	1,938.1	2,633.9	1,847.0	2,874.8	2,874.8	11,081.9	6,084.7	17,166.6
1984	6,598.3	1,125.4	2,434.7	1,650.4	1,159.9	2,392.7	9,530.5	5,830.9	15,361.4
1985	7,668.3	844.8	2,452.0	1,878.6	1,192.6	2,543.0	10,709.2	5870.1	16,579.3
1986*	8,296.4	896.9	2,486.5	2,063.2	1,452.8	2,645.2	11,824.4	6,016.3	17,840.7

*Forecast

Source: Statistics Canada - Private and Public Investment in Canada Cat. No's 61-205 and 61-206

TABLE 1.8

ALBERTA HERITAGE SAVINGS TRUST FUND - DISTRIBUTION OF ASSETS - 1977-1986 (MILLIONS OF DOLLARS)

As at March 31	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Financial Assets										
Alberta Investment Division	1,551	2,266	3,157	3,140	4,524	6,335	8,158	8,079	8,151	8,177
Investments in Provincial Crown Corporations	1,254	1,817	2,629	2,649	4,003	5,783	7,603	7,409	7,421	7,520
Other Investments	297	449	528	491	521	552	555	670	730	657
Capital Projects Division	-	-	-	-	-	-	-	200[a]	200[a]	200[a]
Energy Investment Division	-	-	-	-	25	25	25	25	24	16
Canada Investment Division	50	96	270	929	1,492	1,909	1,903	1,896	1,870	1,864
Commercial Investment Division	-	-	-	-	-	189	199	199	201	217
Deposits and Marketable Securities and Other Assets	581	889	1,023	1,617	1,577	1,242	1,112	1,378	1,828	2,242
Total Financial Assets	2,182	3,251	4,450	5,686	7,618	9,700	11,397	11,777	12,274	12,716
Deemed Assets										
Capital Projects Division	36	123	255	733	961	1,309	1,605	1,935	2,162	2,402
Total	**2,218**	**3,374**	**4,705**	**6,419**	**8,579**	**11,009**	**13,002**	**13,712**	**14,436**	**15,119**

a) Investment in Vencap Equities Alberta Ltd

Source: Alberta Treasury

TABLE 1.9

CHARTERED BANKS: ASSETS & LIABILITIES IN ALBERTA 1972-1986 (MILLIONS OF DOLLARS)

31-Mar.	Number of Branches	Assets			Liabilities		
		Total	Residential Mortgages	Business Loans	Total	Fixed Term Dep.	Personal Savings
1972	567	1,497	327	N A	-	-	-
1973	583	1,923	463	N A	-	-	-
1974	612	5,320	617	1,454	4,914	1,636	2,254
1975	632	6,867	745	1,826	6,669	1,957	2,793
1976	648	8,517	952	2,591	7,756	2,600	3,278
1977	683	10,691	1,107	3,560	9,188	3,179	4,037
1978	693	13,277	1,365	4,539	11,298	3,631	4,544
1979	716	17,045	1,862	5,873	13,993	5,148	5,509
1980	755	22,460	2,561	9,163	16,630	6,302	6,911
1981	811	27,734	2,503	12,399	18,863	7,088	8,107
1982	826	41,755	4,581	17,386	22,717	9,190	9,851
1983	787	45,027	4,658	17,645	22,910	8,350	10,275
1984	815	43,045	4,652	15,822	22,212	7,542	10,330
1985	793	43,615	4,940	15,929	22,455	7,529	11,328
1986	765*	42,582	5,292	15,008	24,302	7,871	12,083

* Preliminary

Source Bank of Canada Review

TABLE 1.10

ALBERTA STOCK EXCHANGE - VOLUMES 1973 -1985

Year	Number of Shares	Dollars
1973	10,215,318	7,123,466
1974	6,263,865	5,717,238
1975	14,298,002	17,944,573
1976	25,748,471	46,443,681
1977	31,696,480	59,080,786
1978	40,016,043	95,301,438
1979	91,063,161	239,363,804
1980	162,399,239	469,797,581
1981	178,670,364	426,806,933
1982	126,130,894	120,499,563
1983	201,802,000	226,639,401
1984	202,473,571	206,855,711
1985	229,372,061	292,082,362

Source Alberta Stock Exchange

TABLE 2.1

VALUE OF MANUFACTURERS' FACTORY SHIPMENTS, BY INDUSTRIAL GROUPS - ALBERTA - SPECIFIED YEARS 1951-1985 (MILLIONS OF DOLLARS)

	1951	1961	1971	1980	1981	1982	1983	1984	1985
Food	247	394	884	3,025	3,294	3,257	3,241	3,517	3,527
Beverages	-	-	-	-	295	295	295	303	310
Wood	51	40	128	434	511	412	501	468	487
Furniture & Fixtures	-	9	20	113	131	93	104	94	97
Paper and Allied Products	3	41	61	331	365	400	391	465	453
Printing, Publishing & Allied Products	14	32	69	370	455	474	491	525	576
Primary Metals	-	68	126	676	793	617	562	680	750
Metal Fabricating	21	56	138	667	786	805	683	604	685
Machinery	-	7	41	469	693	*	464	557	646
Transportation Equipment	17	14	88	157	199	139	114	*	*
Non-Metallic Mineral Products	18	61	120	582	721	686	567	514	569
Petroleum Products	63	109	205	2,069	2,835	3,346	4,033	4,341	5,151
Chemicals & Chemical Products	10	61	125	1,113	1,472	1,451	1,746	1,949	2,049
All Other *	14	44	76	515	690	(1,262)*	671	678	695
TOTAL	458	936	2,081	10,521	13,240	13,237	13,863	14,823	16,141

Source: Statistics Canada: Inventories, Shipments & Orders in Manufacturing Industries, Cat. No. 31-001 and Census of Manufacturers, Cat. No. 31-203

**Includes such groups as textiles, clothing, electrical goods etc. as well as data withheld to maintain confidentiality.*

TABLE 2.2

PRINCIPAL MANUFACTURING STATISTICS, SELECTED CENTRES BY CENSUS DIVISION, ALBERTA, 1983

Census Division and Municipality	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
1	47	1,504	354	1,858	52,662	63,298	175,899	142,647	402,380
2	133	2,985	859	3,844	86,510	14,416	769,949	204,006	985,844
Lethbridge Co. 26	10	168	43	211	4,638	280	18,993	8,586	27,812
Lethbridge	74	2,009	653	2,662	60,532	8,687	523,426	149,846	679,973
Coaldale	8	66	9	75	1,351	93	5,461	2,300	7,983
Taber	8	241	59	300	6,150	3,241	51,651	18,075	72,157
Vauxhall	4	41	13	54	891	713	7,106	1,613	9,423
Bassano	5	84	12	96	2,344	195	6,358	2,733	9,224
3	33	326	89	415	8,313	1,403	34,468	14,048	49,592
4	8	14	7	21	435	39	611	926	1,576
5	28	320	52	372	11,010	27,561	69,948	60,936	165,667

TABLE 2.2 continued

Census Division and Municipality	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
6	843	17,338	5,134	22,472	567,630	62,261	2,163,591	1,018,913	3,284,923
Okotoks	6	84	12	96	1,933	218	3,787	2,156	5,926
Calgary	770	16,253	4,883	21,136	535,188	54,660	1,802,278	957,462	2,860,099
Airdrie	15	317	99	416	9,365	636	13,860	26,650	41,473
7	26	108	42	150	2,888	258	9,502	4,291	14,025
Stettler	6	40	23	63	1,264	73	3,056	2,219	5,322
Wainwright	5	25	3	28	580	46	2,947	633	3,626
8	111	1,704	516	2,220	52,611	26,885	511,504	164,370	697,474
Innisfail	12	228	45	273	6,913	1,728	20,644	17,217	39,104
Red Deer	54	946	283	1,229	28,504	2,810	248,502	58,522	305,777
Lacombe	8	71	23	94	1,968	428	10,679	3,320	14,419
9	24	454	55	509	14,693	14,469	27,214	63,938	101,414
10	62	1,120	218	1,338	32,890	7,214	259,650	37,931	301,839
Camrose Co. 22	4	23	4	27	576	76	2,099	1,635	3,719
Camrose	18	225	44	269	6,380	854	24,242	7,553	32,990
Vegreville	7	113	16	129	2,630	189	5,674	4,207	10,077
Lloydminster (Alta)	11	626	88	714	19,168	5,512	213,768	16,267	232,956
11	943	22,623	6,001	28,624	754,666	239,858	5,047,660	1,933,949	7,214,126
Wetaskiwin	18	138	40	178	3,731	578	26,238	7,683	34,305
Leduc Co. 25	23	490	72	562	13,763	809	34,759	29,698	66,207
Leduc	8	40	36	76	1,258	66	1,648	1,755	3,467
Drayton Valley	5	30	15	45	924	51	940	1,528	2,519
Parkland Co. 31	16	392	61	453	14,255	7,438	21,533	49,155	77,273
Stony Plain	9	46	25	71	1,332	126	2,198	1,642	3,986
Spruce Grove	10	90	30	120	2,460	233	19,040	7,799	27,072
Strathcona Co. 20	65	4,400	475	4,875	157,829	72,645	3,333,635	625,111	4,021,865
Fort Saskatchewan	19	1,899	259	2,158	75,607	72,458	413,101	291,544	761,110
Edmonton	719	14,338	4,872	19,210	457,944	33,339	1,056,027	890,154	1,998,308
Morinville	5	35	4	39	752	100	1,276	1,342	2,719
12	46	368	122	490	10,083	1,461	22,532	18,405	42,865
Bonnyville	8	36	13	49	926	52	1,941	1,431	3,420
St. Paul	5	48	18	66	1,577	191	5,084	3,760	8,922
Fort McMurray	13	109	43	152	3,369	333	7,207	6,324	13,865
13	31	625	123	748	18,607	2,903	43,242	30,193	78,465
Barrhead	9	160	34	194	3,172	692	16,864	5,026	24,516
Westlock	5	22	12	34	710	74	3,105	1,615	4,761
14	20	626	80	706	25,820	8,476	53,854	52,868	113,175
15	82	2,503	407	2,910	78,893	17,515	213,129	165,109	396,930
Grande Prairie	25	461	125	586	15,268	2,201	41,307	30,364	72,097
High Prairie	5	144	41	185	3,107	629	3,071	6,194	9,924
I.D. No. 17	6	198	10	208	4,857	1,158	8,518	12,149	21,840
Peace River	8	109	19	128	2,609	198	5,817	2,904	8,868

TABLE 2.3

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY, ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ments	Employees				Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total	Salaries & Wages				
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	2,437	56,825	15,467	72,292	1,878,808	488,017	9,402,755	3,912,530	13,850,294
Food Industries	252	9,743	2,868	12,611	315,758	41,196	2,648,145	563,015	3,240,600
Meat & Poultry Products Industries	73	4,358	1,387	5,745	147,545	12,521	1,717,367	229,041	1,958,954
Meat and Meat Products Industry	67	4,094	794	4,888	129,440	10,989	1,640,085	198,037	1,847,123
Poultry Products Industry	6	264	593	857	18,105	1,532	77,282	31,004	111,831
Fruit & Vegetable Industries	7	195	115	310	6,108	1,093	38,911	23,901	61,828
Canned & Pres. Fruit & Veg. Ind.	5	*	*	*	*	*	*	*	*
Frozen Fruit & Vegetable Industry	2	*	*	*	*	*	*	*	*
Dairy Products Industries	30	*	*	*	*	*	*	*	*
Fluid Milk Industry	4	*	*	*	*	*	*	*	*
Other Dairy Prod. Industries	26	1,085	243	1,328	33,543	4,195	182,350	61,551	245,329
Flour, Preprd. Cereal Food & Feed Inds.	74	*	*	*	*	*	*	*	*
Cereal Grain Flour Industry	4	353	59	412	10,173	1,117	72,235	13,481	86,372
Preprd. Flour Mixes & Prep. Crl. Fds.	2	*	*	*	*	*	*	*	*
Feed Industry	68	840	116	956	21,788	6,540	217,460	51,092	273,326
Vegetable Oil Mills (Except Corn Oil)	4	*	*	*	*	*	*	*	*
Bakery Products Industries	37	*	*	*	*	*	*	*	*
Biscuit Industries	1	*	*	*	*	*	*	*	*
Bread & Other Bakery Products Ind.	36	946	373	1,319	32,010	2,521	30,926	54,483	87,801
Sugar and Sugar Confectionery Inds.	3	*	*	*	*	*	*	*	*
Cane and Beet Sugar Industry	1	*	*	*	*	*	*	*	*
Sugar & Chocolate Conf. Industry	2	*	*	*	*	*	*	*	*
Other Food Products Industries	24	587	266	853	18,720	3,234	76,282	48,956	128,220
Tea and Coffee Industry	1	*	*	*	*	*	*	*	*
Dry Pasta Products Industry	4	*	*	*	*	*	*	*	*
Potato Chip, Pretzel & Popcorn Ind.	2	*	*	*	*	*	*	*	*
Other Food Products Inds. N.E.C.	17	264	86	350	8,602	2,586	51,428	25,549	79,554
Beverage Industries	26	1,860	374	2,234	61,728	8,333	124,417	165,823	294,978
Soft Drink Industry	15	899	220	1,119	26,076	2,466	69,592	49,665	121,222
Distillery Products Industry	3	*	*	*	*	*	*	*	*
Brewery Products Industry	5	735	72	807	27,691	2,728	34,078	79,684	116,287
Wine Industry	3	*	*	*	*	*	*	*	*
Rubber Products Industries	4	289	37	326	8,339	494	13,081	9,473	23,049
Plastics Products Industries	69	1,050	331	1,381	29,954	3,971	84,552	65,207	151,113
Foamed & Expanded Plastic Prod. Ind.	6	129	63	192	3,816	583	10,190	11,565	22,141
Plastic Pipe & Pipe Fittings Ind.	10	287	35	322	7,853	1,247	27,418	15,950	43,647
Plastic Film & Sheeting Industry	5	*	*	*	*	*	*	*	*
Other Plastic Products Industries	48	*	*	*	*	*	*	*	*
Plastic Bag Industry	6	*	*	*	*	*	*	*	*
Other Plastic Products Inds. N.E.C.	42	408	146	554	11,202	1,578	23,976	22,606	47,608

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Leather and Allied Products Industries	13	*	*	*	*	*	*	*	*
Leather Tanneries	2	*	*	*	*	*	*	*	*
Footwear Industry	2	*	*	*	*	*	*	*	*
Luggage, Purse & Handbag Ind.	3	16	47	63	825	18	1,113	1,378	2,511
Other Leather & Allied Prod. Inds.	6	22	13	35	455	16	809	602	1,392
Primary Textile Industries	2	*	*	*	*	*	*	*	*
Man-Made Fibre & Filament Yarn Ind.	1	*	*	*	*	*	*	*	*
Spun Yarn & Woven Cloth Industry	1	*	*	*	*	*	*	*	*
Textile Products Industries	45	306	388	694	13,381	1,104	38,635	24,685	65,024
Carpet, Mat and Rug Industry	1	*	*	*	*	*	*	*	*
Canvas & Related Products Industry	7	63	79	142	3,006	172	4,048	5,991	10,223
Other Textile Products Industries	37	*	*	*	*	*	*	*	*
Contract Txtl. Dyeing & Finish Ind.	5	27	39	66	905	100	574	2,968	3,642
Household Products of Txtle. Mat Ind.	20	66	146	212	3,601	105	9,542	7,123	16,192
Hygiene Products of Txtle. Mat Ind.	1	*	*	*	*	*	*	*	*
Other Textile Products Inds N.E.C.	11	*	*	*	*	*	*	*	*
Clothing Industries	34	288	1,333	1,621	22,796	970	41,691	58,412	97,866
Men's and Boys' Clothing Inds.	15	*	*	*	*	*	*	*	*
Men's and Boys' Coat Industry	5	*	*	*	*	*	*	*	*
Men's and Boys' Suit & Jacket Ind.	5	*	*	*	*	*	*	*	*
Men's and Boys' Pants Industry	2	*	*	*	*	*	*	*	*
Men's and Boys' Shirt & Underwr. Ind.	2	*	*	*	*	*	*	*	*
Mens' and Boys' Clothing Contrctrs.	1	*	*	*	*	*	*	*	*
Women's Clothing Industries	5	54	292	346	4,778	89	4,693	8,420	13,462
Women's Coat and Jacket Industry	3	*	*	*	*	*	*	*	*
Women's Sportswear Industry	2	*	*	*	*	*	*	*	*
Children's Clothing Industry	1	*	*	*	*	*	*	*	*
Other Clothing & Apparel Industries	13	*	*	*	*	*	*	*	*
Sweater Industry	1	*	*	*	*	*	*	*	*
Occupational Clothing Industry	7	67	238	305	3,791	108	3,515	5,425	9,274
Glove Industry	1	*	*	*	*	*	*	*	*
Fur Goods Industry	1	*	*	*	*	*	*	*	*
Other Clthing & Apprl. Inds. N.E.C.	3	*	*	*	*	*	*	*	*

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees				Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total	Salaries & Wages				
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Wood Industries	**220**	**4,774**	**644**	**5,418**	**131,786**	**17,655**	**272,475**	**217,568**	**501,652**
Sawmills, Planing & Shingle Mills	51	2,176	216	2,392	62,749	10,966	129,773	111,137	244,401
Veneer & Plywood Industries	6	*	*	*	*	*	*	*	*
Hardwood Veneer & Plywood Industry	1	*	*	*	*	*	*	*	*
Softwood Veneer & Plywood Industry	5	*	*	*	*	*	*	*	*
Sash, Door & Other Millwork Inds.	133	1,858	304	2,162	47,582	2,440	94,296	66,936	166,049
Prefab Wooden Buildings Industry	11	646	96	742	17,575	608	44,744	12,632	59,578
Wooden Kitchen Cab. & Bath Vanity Ind.	58	474	119	593	12,317	613	14,994	25,434	41,317
Wooden Door and Window Industry	23	301	57	358	7,596	485	14,633	14,238	29,018
Other Millwork Industries	41	437	32	469	10,093	735	19,926	14,632	36,136
Wooden Box & Pallet Industry	5	78	6	84	1,564	110	3,923	2,512	6,492
Coffin & Casket Industry	4	36	9	45	749	24	1,229	730	1,980
Other Wood Industries	21	*	*	*	*	*	*	*	*
Wood Preservation Industry	10	165	11	176	4,236	885	12,122	7,555	20,677
Particle Board Industry	1	*	*	*	*	*	*	*	*
Wafer Board Industry	1	*	*	*	*	*	*	*	*
Other Wood Industries N.E.C.	9	31	12	43	770	55	1,703	785	2,573
Furniture & Fixture Industries	**90**	**1,209**	**470**	**1,679**	**30,168**	**1,592**	**47,940**	**52,838**	**103,663**
Household Furniture Industries	36	*	*	*	*	*	*	*	*
Wooden Household Furniture Industry	20	117	64	181	2,189	135	4,017	3,455	7,516
Upholstered Household Furniture Ind.	11	316	201	517	8,588	401	16,354	17,116	33,725
Other Household Furniture Inds.	5	*	*	*	*	*	*	*	*
Office Furniture Industries	16	360	104	464	9,052	424	10,616	15,182	26,187
Metal Office Furniture Ind.	2	*	*	*	*	*	*	*	*
Other Office Furniture Inds.	14	*	*	*	*	*	*	*	*
Other Furniture & Fixture Inds.	38	*	*	*	*	*	*	*	*
Bed Spring & Mattress Industry	7	93	44	137	2,670	315	7,709	7,751	15,618
Hotel, Rest & Instit. Furn., Fix. Inds.	22	246	37	283	6,072	227	6,710	7,143	15,776
Other Furn. & Fixture Inds. N.E.C.	9	*	*	*	*	*	*	*	*
Paper & Allied Products Industries	**29**	**1,882**	**357**	**2,239**	**69,785**	**16,180**	**194,072**	**164,741**	**380,866**
Pulp & Paper Industries	3	*	*	*	*	*	*	*	*
Pulp Industry	2	*	*	*	*	*	*	*	*
Building Board Industry	1	*	*	*	*	*	*	*	*
Asphalt Roofing Industry	3	238	25	263	7,278	1,081	38,460	19,520	57,416
Paper Box & Bag Industries	13	*	*	*	*	*	*	*	*
Folding Carton & Set-Up Box Ind.	1	*	*	*	*	*	*	*	*
Corrugated Box Industry	10	355	74	429	10,269	819	33,856	22,022	56,845
Paper Bag Industry	2	*	*	*	*	*	*	*	*
Other Converted Paper Products Inds.	10	131	36	167	3,534	234	9,020	6,552	15,597
Coated & Treated Paper Industry	1	*	*	*	*	*	*	*	*
Stationery Paper Products Industry	4	*	*	*	*	*	*	*	*
Other Cnvrt. Paper Prods. Inds. N.E.C.	5	70	8	78	1,351	110	4,456	2,163	6,635

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Printing, Publishing & Allied Inds.	**443**	**4,832**	**3,155**	**7,987**	**188,091**	**5,264**	**151,836**	**333,910**	**491,162**
Commercial Printing Industries	243	2,161	1,091	3,252	76,145	2,156	81,006	118,824	201,945
Business Forms Printing Industry	23	490	210	700	17,208	390	16,283	26,998	43,683
Other Commercial Printing Inds.	220	1,671	881	2,552	58,938	1,766	64,723	91,826	158,262
Platemaking, Typesetting, Bindery Inds.	57	326	398	724	14,008	533	9,467	25,132	35,146
Publishing, Industries	71	286	286	572	10,340	49	8,620	17,475	26,320
Book Publishing Industry	5	14	18	32	666	-	1,395	1,436	3,011
Other Publishing Industries	66	272	268	540	9,674	49	7,225	16,039	23,308
Combined Publishing & Printing Inds.	72	2,059	1,380	3,439	87,598	2,528	52,743	172,480	227,751
Newsp., Mag. & Prdicl. (Combined Pub. & Pr.)	69	2,018	1,371	3,389	86,613	2,490	51,756	171,565	225,810
Other Combined Publ. & Printing Inds.	3	41	9	50	985	38	987	916	1,941
Primary Metal Industries	**25**	**2,902**	**221**	**3,123**	**98,056**	**37,308**	**281,639**	**222,123**	**561,936**
Primary Steel Industries	5	.	.	.	.	.	.	.	.
Steel Foundries	3	.	.	.	.	.	.	.	.
Other Primary Steel Industries	2	.	.	.	.	.	.	.	.
Steel Pipe & Tube Industry	4	563	17	580	18,683	1,520	76,828	38,477	134,268
Iron Foundries	7	304	15	319	7,149	889	7,152	15,968	29,031
Non-Ferrous Metal Smelting & Refin	1	.	.	.	.	.	.	.	.
Aluminum Rolling, Casting & Extrud.	4	.	.	.	.	.	.	.	.
Other Rled., Cast. & Extr. Non-Fer. Metal	4	.	.	.	.	.	.	.	.
Transportation Equipment Industries	**77**	**1,631**	**305**	**1,936**	**46,540**	**1,791**	**56,247**	**56,594**	**114,219**
Aircraft & Aircraft Parts Industry	16	368	69	437	10,894	593	10,290	12,466	24,833
Truck, Bus Body & Trailer Industries	39	578	128	706	15,176	606	33,054	24,324	56,706
Truck and Bus Body Industry	13	.	.	.	.	.	.	.	.
Commercial Trailer Industry	10	.	.	.	.	.	.	.	.
Non-Commercial Trailer Industry	11	173	55	228	5,470	111	11,011	9,007	18,449
Mobile Home Industry	5	144	42	186	3,709	184	14,369	7,593	22,196
Motor Vehicle Parts & Access Inds.	15	.	.	.	.	.	.	.	.
Motor Vehicle Stampings Industry	2	.	.	.	.	.	.	.	.
Motor Vehicle Steerings & Suspns. Pts.	2	.	.	.	.	.	.	.	.
Plastic Parts & Access. for Mtr. Veh.	2	.	.	.	.	.	.	.	.
Mtr. Vehcl. Access., Prts. & Assem. Inds.	1	.	.	.	.	.	.	.	.
Other Mtr. Vehcl. Access., Pts. & Assem.	8	.	.	.	.	.	.	.	.
Boat Building & Repair Industry	5	.	.	.	.	.	.	.	.
Other Transportation Equipment Inds.	2	.	.	.	.	.	.	.	.

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Fabricated Metal Products Industries	**404**	**7,838**	**880**	**8,718**	**223,335**	**10,779**	**325,216**	**347,231**	**676,989**
Power Boiler & Heat Exchanger Ind.	4	173	14	187	5,213	246	7,132	8,215	14,916
Fabricated Structural Metal Products	55	*	*	*	*	*	*	*	*
Metal Tanks (Heavy Guage) Industry	7	271	19	290	7,569	612	12,912	11,937	25,739
Plate Work Industry	3	*	*	*	*	*	*	*	*
Pre-Engnrd. Mtl. Bldgs. Ind. (Ex. Port)	8	540	40	580	14,757	457	23,117	21,399	45,407
Other Fab. Struct. Metal Prods. Inds.	37	1,886	106	1,992	63,388	1,878	73,327	85,842	154,794
Ornamental & Arch Metal Prods. Ind.	65	*	*	*	*	*	*	*	*
Metal Door & Window Industry	29	681	182	863	17,520	812	28,753	24,636	52,181
Prefab. Portable Metal Bldings. Ind.	2	*	*	*	*	*	*	*	*
Other Ornamental & Arch Metal Prod.	34	222	23	245	5,859	243	9,306	9,554	19,443
Stamped, Pressed & Coated Metal Prod.	77	1,239	156	1,395	34,347	2,834	82,558	65,263	148,993
Custom Coating of Mtl. Products Ind.	17	453	44	497	13,368	1,364	10,788	24,905	37,039
Metal Closure & Container Industry	9	207	17	224	5,220	604	23,054	14,248	37,862
Other Stamped & Pressed Metal Prod.	51	579	95	674	15,759	866	48,717	26,110	74,092
Wire & Wire Products Industries	13	217	38	255	5,931	316	10,399	4,367	15,231
Wire & Wire Rope Industry	1	*	*	*	*	*	*	*	*
Industrial Fastener Industry	3	*	*	*	*	*	*	*	*
Other Wire Products Industries	9	146	27	173	4,256	297	9,101	3,872	13,419
Hardware, Tool & Cutlery Industries	17	*	*	*	*	*	*	*	*
Basic Hardware Industry	2	*	*	*	*	*	*	*	*
Metal Dies, Moulds & Patterns Ind.	7	48	4	52	966	30	380	867	1,279
Hand Tool & Implement Industry	4	*	*	*	*	*	*	*	*
Other Hardware & Cutlery Industries	4	45	7	52	1,245	28	1,544	2,184	3,509
Heating Equipment Industry	9	241	32	273	5,829	268	9,358	13,500	23,245
Machine Shop Industry	114	1,268	128	1,396	33,216	1,621	21,479	49,790	74,505
Other Metal Fabricating Industries	50	738	84	822	20,717	1,151	37,113	33,633	74,004
Metal Plumbing Fix. & Fittings Ind.	1	*	*	*	*	*	*	*	*
Metal Valve Industry	7	108	26	134	3,983	108	5,882	7,879	14,855
Other Metal Fabricating Inds. N.E.C.	42	*	*	*	*	*	*	*	*
Machinery Industries	**151**	**4,525**	**483**	**5,008**	**133,426**	**6,748**	**202,582**	**235,321**	**464,190**
Agricultural Implement Industry	24	482	67	549	12,254	614	18,759	20,917	40,706
Commercial Refrig. & Air Cond. Equip.	2	*	*	*	*	*	*	*	*
Other Machinery & Equipment Inds.	125	*	*	*	*	*	*	*	*
Compressor, Pump. & Industrial Fan	9	178	36	214	5,931	283	14,215	9,716	24,395
Constr. & Mining Mach. & Mat. Hndling	87	3,134	317	3,451	96,326	5,225	151,774	167,757	343,696
Sawmill & Woodworking Machinery Ind.	1	*	*	*	*	*	*	*	*
Turbine & Mech. Power Transm. Equip.	5	*	*	*	*	*	*	*	*
Other Machinery & Equip. Inds. N.E.C.	23	485	41	526	12,483	357	14,854	29,352	44,780

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Electrical and Electronic Products Inds.	**44**	**1,593**	**1,115**	**2,708**	**66,339**	**1,235**	**86,942**	**58,452**	**154,370**
Small Electrical Appliance Industry	3	54	10	64	1,134	69	1,656	953	2,710
Electric Lighting Industries	2	·	·	·	·	·	·	·	·
Lighting Fixture Industry	1	·	·	·	·	·	·	·	·
Electric Lamp (Bulb & Tube) Ind.	1	·	·	·	·	·	·	·	·
Communication & Other Electron Equip.	15	516	707	1,223	30,084	416	58,986	33,670	99,015
Telecommunication Equip. Industry	8	387	645	1,032	25,005	408	58,100	32,886	97,337
Electronic Parts & Components Ind.	3	16	21	37	422	2	516	454	972
Other Commun. & Electron Equip, Inds.	4	113	41	154	4,656	6	370	330	706
Electronic Computing & Periph. Equip.	1	·	·	·	·	·	·	·	·
Electrical Industrial Equip. Inds.	17	·	·	·	·	·	·	·	·
Electrical Transformer Ind.	2	·	·	·	·	·	·	·	·
Electrical Switchgr. & Protec. Equip.	7	196	129	325	7,534	198	9,992	8,389	19,340
Other Electrical Industrial Equip.	8	213	50	263	5,774	123	3,044	5,425	9,525
Communications, Energy Wire & Cable	5	108	32	140	3,630	320	6,900	6,782	13,869
Other Electrical Products Industries	1	·	·	·	·	·	·	·	·
Non-Metallic Mineral Products Inds.	**159**	**3,898**	**603**	**4,501**	**126,096**	**42,182**	**229,811**	**295,877**	**566,787**
Clay Products Industries	8	·	·	·	·	·	·	·	·
Clay Products Ind. (Domestic Clay)	4	·	·	·	·	·	·	·	·
Clay Products Ind. (Imported Clay)	4	·	·	·	·	·	·	·	·
Hydraulic Cement Industry	3	·	·	·	·	·	·	·	·
Concrete Products Industries	38	1,011	88	1,099	31,962	2,699	40,788	55,790	101,797
Concrete Pipe Industry	5	148	11	159	4,866	584	5,986	8,462	15,778
Structural Concrete Products Ind.	13	635	43	678	20,583	1,479	25,626	38,428	67,175
Other Concrete Products Inds.	20	228	34	262	6,513	636	9,177	8,900	18,843
Ready-Mix Concrete Industry	84	1,100	101	1,201	30,734	7,493	95,695	52,947	156,009
Glass & Glass Products Industries	7	·	·	·	·	·	·	·	·
Primary Glass & Glass Containers	1	·	·	·	·	·	·	·	·
Glass Prod. Industry (Except Cont.)	6	·	·	·	·	·	·	·	·
Lime Industry	2	·	·	·	·	·	·	·	·
Other Non-Metallic Mineral Products	17	·	·	·	·	·	·	·	·
Gypsum Products Industry	7	251	34	285	7,119	2,804	24,198	10,582	37,452
Non-Metallic Mineral Insulating Mat.	5	343	58	401	11,889	4,617	19,769	41,671	65,373
Other Non-Metal Min. Prod. Inds. N.E.C.	5	35	4	39	613	59	871	881	1,844
Refined Petroleum & Coal Products Inds.	**18**	**1,790**	**406**	**2,196**	**81,223**	**48,357**	**3,593,715**	**391,808**	**4,033,176**
Refined Petroleum Products Industries	11	1,744	402	2,146	79,584	47,630	3,571,668	388,014	4,006,366
Ref. Pet Prod. (Except Lub. Oil & Gr.)	7	1,644	383	2,027	76,729	46,902	3,561,459	382,107	3,989,572
Lubricating Oil & Grease Industry	4	100	19	119	2,855	728	10,209	5,907	16,794
Other Petroleum & Coal Products Inds.	7	46	4	50	1,639	727	22,047	3,793	26,810

TABLE 2.3 continued

Industry Group and Industry	Reporting Establish-ments	Employees				Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total	Salaries & Wages				
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Chemical & Chemical Products Industries	**82**	**4,211**	**630**	**4,841**	**163,962**	**238,883**	**925,680**	**558,388**	**1,747,985**
Industrial Chemicals Inds. N.E.C.	17	1,778	280	2,058	72,101	95,422	486,174	334,597	911,986
Indus. Inorganic Chem. Inds. N.E.C.	10	782	120	902	30,020	33,980	50,419	104,284	190,526
Industrial Organic Chem. Inds. N.E.C.	7	996	160	1,156	42,081	61,441	435,755	230,313	721,460
Agricultural Chemical Industries	13	1,364	125	1,489	53,343	132,943	283,182	135,352	590,861
Chemical Fertilizer & Fert. Mat. Ind.	6	1,254	109	1,363	50,415	132,715	248,353	106,261	527,028
Mixed Fertilizer Industry	5	*	*	*	*	*	*	*	*
Other Agricultural Chemical Inds.	2	*	*	*	*	*	*	*	*
Plastic & Synthetic Resin Industry	6	482	66	548	18,757	9,484	115,363	40,556	155,894
Pharmaceutical & Medicine Industry	6	*	*	*	*	*	*	*	*
Paint & Varnish Industry	3	*	*	*	*	*	*	*	*
Soap & Cleaning Compounds Industry	7	127	30	157	4,104	236	6,563	10,297	17,143
Other Chemical Products Industries	30	349	60	409	11,674	665	25,433	33,827	59,161
Printing Ink Industry	5	*	*	*	*	*	*	*	*
Adhesives Industry	2	*	*	*	*	*	*	*	*
Other Chemical Products Inds. N.E.C.	23	306	53	359	10,538	565	21,340	30,673	51,772
Other Manufacturing Industries	**250**	**1,796**	**715**	**2,511**	**54,471**	**1,641**	**53,731**	**62,605**	**120,563**
Scientific & Professional Equipment	54	830	304	1,134	28,004	440	27,160	27,989	57,798
Indicating, Recording & Controlling	28	628	142	770	21,289	308	17,643	17,454	36,554
Other Instruments & Related Prod.	5	35	73	108	2,068	42	3,694	5,265	10,096
Ophthalmic Goods Industry	21	167	89	256	4,648	91	5,824	5,270	11,147
Jewellery & Precious Metal Industries	17	37	48	85	1,658	66	1,592	2,162	3,991
Sporting Goods & Toy Industries	10	*	*	*	*	*	*	*	*
Sporting Goods Industry	9	*	*	*	*	*	*	*	*
Toys & Games Industry	1	*	*	*	*	*	*	*	*
Sign & Display Industry	73	416	136	552	11,596	594	10,819	14,017	25,591
Other Manufactured Products Inds.	96	*	*	*	*	*	*	*	*
Broom, Brush & Mop Industry	2	*	*	*	*	*	*	*	*
Button, Buckle & Clothes Fastener	2	*	*	*	*	*	*	*	*
Other Manuf. Products Inds. N.E.C.	92	428	182	610	10,662	490	12,516	16,392	29,349

TABLE 2.4

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY, CENSUS DIVISIONS, ALBERTA, 1983

Census Division Industry Group and Industry	Reporting Establish-ents	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
1									
Total All Industries	47	1,504	354	1,858	52,662	63,298	175,899	142,647	402,380
Food Industries	6	165	31	196	4,889	543	37,257	10,386	48,033
Rubber Products Industries	1	•	•	•	•	•	•	•	•
Wood Industries	3	4	•	4	77	6	367	43	416
Paper & Allied Products Industries	1	•	•	•	•	•	•	•	•
Printing, Publishing & Allied Inds.	7	124	49	173	3,648	145	4,105	8,556	12,800
Primary Metal Industries	1	•	•	•	•	•	•	•	•
Fabricated Metal Products Industries	5	66	6	72	1,575	83	2,364	3,043	5,787
Machinery Industries	1	•	•	•	•	•	•	•	•
Non-Metallic Mineral Products Inds.	12	474	204	678	17,289	3,464	16,180	27,533	46,347
Chemical & Chemical Products Industries	4	500	53	553	21,234	58,600	103,657	84,116	267,541
Other Manufacturing Industries	6	•	•	•	•	•	•	•	•
2									
Total All Industries	133	2,985	859	3,844	86,510	14,416	769,949	204,006	985,844
Food Industries	37	1,523	386	1,909	45,046	10,400	688,585	114,509	809,041
Beverage Industries	4	252	44	296	7,550	1,868	16,590	29,869	47,323
Plastics Products Industries	4	•	•	•	•	•	•	•	•
Textile Products Industries	2	•	•	•	•	•	•	•	•
Wood Industries	10	117	26	143	3,160	170	8,005	5,489	13,599
Paper & Allied Products Industries	1	•	•	•	•	•	•	•	•
Printing, Publishing & Allied Inds.	12	152	85	237	5,372	186	3,115	11,381	14,683
Primary Metal Industries	2	•	•	•	•	•	•	•	•
Fabricated Metal Products Industries	19	227	35	262	4,725	345	9,156	10,182	17,787
Machinery Industries	13	260	28	288	6,418	311	8,573	12,644	22,096
Transportation Equipment Industries	7	157	39	196	3,834	150	11,111	7,835	19,114
Electrical and Electronic Products Inds.	2	•	•	•	•	•	•	•	•
Non-Metallic Mineral Products Inds.	8	61	6	67	1,603	289	4,846	3,992	9,072
Chemical & Chemical Products Industries	3	3	•	3	66	3	166	187	356
Other Manufacturing Industries	9	39	14	53	1,265	62	891	962	1,880
3									
Total All Industries	33	326	89	415	8,313	1,403	34,468	14,048	49,592
Food Industries	6	47	11	58	1,226	402	16,715	4,466	21,318
Leather and Allied Products Industries	2	•	•	•	•	•	•	•	•
Clothing Industries	2	•	•	•	•	•	•	•	•
Wood Industries	8	213	38	251	5,448	927	13,518	7,303	21,653
Furniture & Fixture Industries	2	•	•	•	•	•	•	•	•
Printing, Publishing & Allied Inds.	5	16	8	24	492	3	669	666	1,339
Fabricated Metal Products Industries	3	•	•	•	•	•	•	•	•
Machinery Industries	1	•	•	•	•	•	•	•	•
Transportation Equipment Industries	1	•	•	•	•	•	•	•	•
Electrical and Electronic Products Inds.	1	•	•	•	•	•	•	•	•
Chemical & Chemical Products Industries	1	•	•	•	•	•	•	•	•
Other Manufacturing Industries	1	•	•	•	•	•	•	•	•

TABLE 2.4 continued

Census Division Industry Group and Industry	Reporting Establish-ents	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
4									
Total All Industries	8	14	7	21	435	39	611	926	1,576
Textile Products Industries	1	*	*	*	*	*	*	*	*
Printing, Publishing & Allied Inds.	3	5	6	11	218	5	114	467	586
Fabricated Metal Products Industries	1	*	*	*	*	*	*	*	*
Transportation Equipment Industries	1	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	2	*	*	*	*	*	*	*	*
5									
Total All Industries	28	320	52	372	11,010	27,561	69,948	60,936	165,667
Food Industries	3	*	*	*	*	*	*	*	*
Textile Products Industries	2	*	*	*	*	*	*	*	*
Wood Industries	2	*	*	*	*	*	*	*	*
Printing, Publishing & Allied Inds.	6	32	17	49	845	15	678	1,309	2,003
Fabricated Metal Products Industries	2	*	*	*	*	*	*	*	*
Machinery Industries	3	*	*	*	*	*	*	*	*
Transportation Equipment Industries	1	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	3	*	*	*	*	*	*	*	*
Chemical & Chemical Products Industries	3	*	*	*	*	*	*	*	*
Other Manufacturing Industries	3	*	*	*	*	*	*	*	*
6									
Total All Industries	843	17,338	5,134	22,472	567,630	62,261	2,163,591	1,018,913	3,284,923
Food Industries	64	3,035	965	4,000	102,697	11,098	931,470	189,002	1,130,804
Beverage Industries	11	*	*	*	*	*	*	*	*
Rubber Products Industries	1	*	*	*	*	*	*	*	*
Plastics Products Industries	32	*	*	*	*	*	*	*	*
Leather and Allied Products Industries	6	*	*	*	*	*	*	*	*
Primary Textile Industries	1	*	*	*	*	*	*	*	*
Textile Products Industries	18	188	194	382	7,568	764	29,935	14,883	46,272
Clothing Industries	13	*	*	*	*	*	*	*	*
Wood Industries	49	*	*	*	*	*	*	*	*
Furniture & Fixture Industries	45	606	263	869	15,032	630	24,826	27,349	54,176
Paper & Allied Products Industries	14	478	137	615	14,836	1,719	57,579	41,802	99,920
Printing, Publishing & Allied Inds.	158	1,988	1,130	3,118	78,854	2,080	64,581	131,630	197,997
Primary Metal Industries	13	*	*	*	*	*	*	*	*
Fabricated Metal Products Industries	149	3,130	333	3,463	92,221	3,993	127,063	136,301	262,128
Machinery Industries	49	1,631	153	1,784	47,935	2,789	73,741	100,576	186,025
Transportation Equipment Industries	29	546	98	644	14,084	862	19,018	27,117	46,645
Electrical and Electronic Products Inds.	18	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	40	791	60	851	22,873	5,070	60,543	44,930	110,799
Refined Petroleum & Coal Products Inds.	6	*	*	*	*	*	*	*	*
Chemical & Chemical Products Industries	29	*	*	*	*	*	*	*	*
Other Manufacturing Industries	98	673	285	958	19,094	708	27,717	29,438	59,379

TABLE 2 4 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
7									
Total All Industries	**26**	**108**	**42**	**150**	**2,888**	**258**	**9,502**	**4,291**	**14,025**
Food Industries	7	16	7	23	481	80	2,787	699	3,565
Wood Industries	4	6	2	8	137	12	274	170	457
Printing, Publishing & Allied Inds.	6	28	29	57	830	30	471	1,392	1,892
Fabricated Metal Products Industries	2	.	.	.	.	.	.	.	.
Machinery Industries	2	.	.	.	.	.	.	.	.
Transportation Equipment Industries	2	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	1	.	.	.	.	.	.	.	.
Chemical & Chemical Products Industries	1	.	.	.	.	.	.	.	.
Other Manufacturing Industries	1	.	.	.	.	.	.	.	.
8									
Total All Industries	**111**	**1,704**	**516**	**2,220**	**52,611**	**26,885**	**511,504**	**164,370**	**697,474**
Food Industries	17	491	71	562	13,618	2,060	229,481	26,848	256,951
Beverage Industries	2	.	.	.	.	.	.	.	.
Textile Products Industries	3	.	.	.	.	.	.	.	.
Clothing Industries	1	.	.	.	.	.	.	.	.
Wood Industries	16	158	13	171	3,653	532	6,240	4,573	10,696
Furniture & Fixture Industries	2	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	23	196	167	363	7,293	196	4,308	13,527	18,036
Fabricated Metal Products Industries	13	84	7	91	2,147	173	10,637	6,515	16,738
Machinery Industries	7	95	6	101	2,110	214	5,746	5,962	11,295
Transportation Equipment Industries	3	.	.	.	.	.	.	.	.
Electrical and Electronic Products Inds.	3	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	10	203	33	236	6,437	1,947	13,762	15,288	30,367
Refined Petroleum & Coal Products Inds.	2	.	.	.	.	.	.	.	.
Chemical & Chemical Products Industries	1	.	.	.	.	.	.	.	.
Other Manufacturing Industries	8	28	23	51	918	62	1,360	1,295	2,807
9									
Total All Industries	**24**	**454**	**55**	**509**	**14,693**	**14,469**	**27,214**	**63,938**	**101,414**
Food Industries	1	.	.	.	.	.	.	.	.
Clothing Industries	1	.	.	.	.	.	.	.	.
Wood Industries	4	88	3	91	2,254	372	4,600	2,561	5,525
Furniture & Fixture Industries	1	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	7	.	.	.	.	.	.	.	.
Fabricated Metal Products Industries	2	.	.	.	.	.	.	.	.
Electrical and Electronic Products Inds.	2	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	5	265	13	278	9,511	13,863	14,905	55,248	81,926
Other Manufacturing Industries	1	.	.	.	.	.	.	.	.

TABLE 2.4 continued

Census Division Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
10									
Total All Industries	**62**	**1,120**	**218**	**1,338**	**32,890**	**7,214**	**259,650**	**37,931**	**301,839**
Food Industries	16	212	58	270	6,598	1,903	77,744	8,766	88,837
Plastics Products Industries	1	*	*	*	*	*	*	*	*
Textile Products Industries	1	*	*	*	*	*	*	*	*
Wood Industries	5	*	*	*	*	*	*	*	*
Paper & Allied Products Industries	1	*	*	*	*	*	*	*	*
Printing, Publishing & Allied Inds.	11	61	63	124	2,423	101	2,695	3,825	6,620
Primary Metal Industries	1	*	*	*	*	*	*	*	*
Fabricated Metal Products Industries	7	195	13	208	5,532	373	11,937	6,651	18,931
Machinery Industries	3	*	*	*	*	*	*	*	*
Transportation Equipment Industries	1	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	9	51	5	56	1,265	297	4,422	1,972	6,691
Refined Petroleum & Coal Products Inds.	2	*	*	*	*	*	*	*	*
Chemical & Chemical Products Industries	1	*	*	*	*	*	*	*	*
Other Manufacturing Industries	3	7	2	9	143	5	268	220	494
11									
Total All Industries	**943**	**22,623**	**6,001**	**28,624**	**754,666**	**239,858**	**5,047,660**	**1,933,949**	**7,214,126**
Food Industries	69	3,112	1,089	4,201	105,772	11,042	591,861	189,802	788,570
Beverage Industries	7	730	84	814	21,840	2,183	44,085	60,223	106,341
Rubber Products Industries	2	*	*	*	*	*	*	*	*
Plastics Products Industries	31	*	*	*	*	*	*	*	*
Leather and Allied Products Industries	5	*	*	*	*	*	*	*	*
Primary Textile Industries	1	*	*	*	*	*	*	*	*
Textile Products Industries	17	*	*	*	*	*	*	*	*
Clothing Industries	15	209	1,029	1,238	18,022	837	36,335	51,210	84,968
Wood Industries	65	865	124	989	21,292	1,770	42,534	40,541	85,451
Furniture & Fixture Industries	35	*	*	*	*	*	*	*	*
Paper & Allied Products Industries	10	*	*	*	*	*	*	*	*
Printing, Publishing & Allied Inds.	171	1,930	1,322	3,252	75,846	2,312	65,355	148,436	216,533
Primary Metal Industries	8	1,949	157	2,106	68,292	32,368	205,286	177,776	420,657
Fabricated Metal Products Industries	187	3,669	377	4,046	102,647	5,598	157,129	178,971	342,910
Machinery Industries	68	1,933	200	2,133	59,320	3,162	104,571	107,491	225,824
Transportation Equipment Industries	30	392	66	458	10,835	678	16,423	13,936	32,240
Electrical and Electronic Product Inds.	18	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	45	*	*	*	*	*	*	*	*
Refined Petroleum & Coal Products Inds.	8	1,164	109	1,273	48,864	36,017	2,996,191	372,184	3,406,312
Chemical & Chemical Products Industries	37	*	*	*	*	*	*	*	*
Other Manufacturing Industries	114	615	270	885	17,690	752	22,031	29,012	52,798

TABLE 2.4 continued

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
12									
Total All Industries	**46**	**368**	**122**	**490**	**10,083**	**1,461**	**22,532**	**18,405**	**42,865**
Food Industries	7	50	11	61	1,363	231	7,316	2,605	10,136
Beverage Industries	1	.	.	.	.	.	.	.	.
Textile Products Industries	1	.	.	.	.	.	.	.	.
Clothing Industries	2	.	.	.	.	.	.	.	.
Wood Industries	8	119	3	122	2,507	573	5,154	4,155	10,463
Furniture & Fixture Industries	1	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	10	52	53	105	2,075	57	1,370	3,472	4,899
Fabricated Metal Products Industries	3	25	2	27	672	32	350	964	1,347
Machinery Industries	2	.	.	.	.	.	.	.	.
Transportation Equipment Industries	1	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	7	.	.	.	.	.	.	.	.
Chemical & Chemical Products Industries	1	.	.	.	.	.	.	.	.
Other Manufacturing Industries	2	.	.	.	.	.	.	.	.
13									
Total All Industries	**31**	**625**	**123**	**748**	**18,607**	**2,903**	**43,242**	**30,193**	**78,465**
Food Industries	8	67	18	85	1,802	380	16,274	3,446	20,197
Plastics Products Industries	1	.	.	.	.	.	.	.	.
Wood Industries	6	501	58	559	15,141	2,281	22,049	23,339	49,733
Furniture & Fixture Industries	2	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	8	25	43	68	948	41	743	1,342	2,127
Fabricated Metal Products Industries	1	.	.	.	.	.	.	.	.
Transportation Equipment Industries	1	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	4	.	.	.	.	.	.	.	.
14									
Total All Industries	**20**	**626**	**80**	**706**	**25,820**	**8,476**	**53,854**	**52,868**	**113,175**
Food Industries	1	.	.	.	.	.	.	.	.
Wood Industries	10	.	.	.	.	.	.	.	.
Furniture & Fixture Industries	1	.	.	.	.	.	.	.	.
Paper & Allied Products Industries	1	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	4	.	.	.	.	.	.	.	.
Machinery Industries	1	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	2	.	.	.	.	.	.	.	.
15									
Total All Industries	**82**	**2,503**	**407**	**2,910**	**78,893**	**17,515**	**213,129**	**165,109**	**396,930**
Food Industries	10	.	.	.	.	.	.	.	.
Beverage Industries	1	.	.	.	.	.	.	.	.
Wood Industries	30	1,430	165	1,595	41,985	8,070	97,383	79,290	178,884
Furniture & Fixture Industries	1	.	.	.	.	.	.	.	.
Paper & Allied Products Industries	1	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	12	80	73	153	2,861	67	2,249	5,245	7,560
Fabricated Metal Products Industries	10	59	5	64	1,925	113	3,526	2,473	6,141
Machinery Industries	1	.	.	.	.	.	.	.	.
Non-Metallic Mineral Products Inds.	11	.	.	.	.	.	.	.	.
Chemical & Chemical Products Industries	1	.	.	.	.	.	.	.	.
Other Manufacturing Industries	4	.	.	.	.	.	.	.	.

TABLE 2.5

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY. CALGARY, ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	**770**	**16,253**	**4,883**	**21,136**	**535,188**	**54,660**	**1,802,278**	**957,462**	**2,860,099**
Food Industries	53	2,974	927	3,901	100,965	10,798	919,330	183,098	1,112,502
Beverage Industries	10	694	164	858	25,157	3,767	55,707	66,764	124,443
Rubber Products Industries	1	*	*	*	*	*	*	*	*
Plastics Products Industries	30	407	147	554	12,052	1,461	35,165	28,386	64,904
Leather and Allied Products Industries	5	*	*	*	*	*	*	*	*
Textile Products Industries	18	188	194	382	7,568	764	29,935	14,883	46,272
Clothing Industries	13	*	*	*	*	*	*	*	*
Wood Industries	40	542	123	665	15,585	922	25,300	27,467	55,861
Furniture & Fixture Industries	45	606	263	869	15,032	630	24,826	27,349	54,176
Paper & Allied Products Industries	14	478	137	615	14,836	1,719	57,579	41,802	99,920
Printing, Publishing & Allied Inds.	150	1,952	1,087	3,039	77,496	2,056	63,740	129,492	194,992
Primary Metal Industries	12	771	46	817	24,498	4,211	64,964	39,943	123,636
Fabricated Metal Products Industries	144	3,083	328	3,411	91,204	3,932	126,066	135,070	260,006
Machinery Industries	43	1,366	139	1,505	41,061	2,604	68,572	79,437	159,161
Transportation Equipment Industries	21	486	80	566	12,648	765	14,468	25,087	39,942
Electrical and Electronic Products Inds.	17	366	511	877	22,226	426	52,529	37,250	92,051
Non-Metallic Mineral Products Inds.	33	736	55	791	21,260	4,543	54,284	42,419	101,358
Refined Petroleum & Coal Products Inds.	5	*	*	*	*	*	*	*	*
Chemical & Chemical Products Industries	26	709	107	816	25,545	12,010	85,475	34,916	150,876
Other Manufacturing Industries	90	657	279	936	18,730	696	27,268	28,791	58,277

TABLE 2.6

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY. EDMONTON (METRO), ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	**840**	**21,344**	**5,710**	**27,054**	**715,645**	**230,369**	**4,936,016**	**1,832,955**	**6,922,102**
Food Industries	54	2,998	1,067	4,065	102,531	10,444	549,595	180,851	736,742
Beverage Industries	7	730	84	814	21,840	2,183	44,085	60,223	106,341
Rubber Products Industries	1	.	.	.	.	.	.	.	.
Plastics Products Industries	29	554	153	707	15,357	2,116	44,532	33,711	77,874
Leather and Allied Products Industries	3	.	.	.	.	.	.	.	.
Primary Textile Industries	1	.	.	.	.	.	.	.	.
Textile Products Industries	16	62	115	177	3,084	244	4,458	6,654	11,289
Clothing Industries	15	209	1,029	1,238	18,022	837	36,335	51,210	84,968
Wood Industries	50	775	118	893	19,513	1,619	37,911	38,067	78,236
Furniture & Fixture Industries	32	489	156	645	12,448	856	19,653	23,057	43,461
Paper & Allied Products Industries	10	.	.	.	.	.	.	.	.
Printing, Publishing & Allied Inds.	157	1,830	1,235	3,065	72,696	2,201	61,427	142,033	206,110
Primary Metal Industries	8	1,949	157	2,106	68,292	32,368	205,286	177,776	420,657
Fabricated Metal Products Industries	170	3,369	345	3,714	94,512	5,011	141,406	161,972	309,761
Machinery Industries	60	1,785	179	1,964	54,722	2,879	86,042	93,617	193,082
Transportation Equipment Industries	23	288	46	334	8,003	550	11,328	9,969	23,126
Electrical and Electronic Products Inds.	16	208	82	290	6,260	255	7,560	12,728	21,117
Non-Metallic Mineral Products Inds.	36	1,322	115	1,437	40,272	8,624	83,785	93,494	188,771
Refined Petroleum & Coal Products Inds.	5	1,164	109	1,273	48,864	36,017	2,996,191	372,184	3,406,312
Chemical & Chemical Products Industries	35	2,384	307	2,691	91,532	120,122	525,597	300,278	924,938
Other Manufacturing Industries	109	610	267	877	17,561	747	21,935	28,786	52,470

TABLE 2.7

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY. LETHBRIDGE, ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	**74**	**2,009**	**653**	**2,662**	**60,532**	**8,687**	**523,426**	**149,846**	**679,973**
Food Industries	18	1,050	291	1,341	32,605	5,379	469,393	83,848	555,740
Beverage Industries	4	252	44	296	7,550	1,868	16,590	29,869	47,323
Plastics Products Industries	2	*	*	*	*	*	*	*	*
Textile Products Industries	1	*	*	*	*	*	*	*	*
Wood Industries	5	*	*	*	*	*	*	*	*
Printing, Publishing & Allied Inds.	6	111	59	170	4,204	149	2,303	9,725	12,177
Primary Metal Industries	1	*	*	*	*	*	*	*	*
Fabricated Metal Products Industries	11	190	27	217	3,939	309	7,623	8,890	14,979
Machinery Industries	8	120	7	127	2,565	167	3,582	5,381	9,110
Transportation Equipment Industries	4	*	*	*	*	*	*	*	*
Electrical and Electronic Products Inds.	1	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	5	45	5	50	1,234	208	3,526	3,310	6,989
Other Manufacturing Industries	8	*	*	*	*	*	*	*	*

TABLE 2.8

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY, RED DEER, ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ments	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	**54**	**946**	**283**	**1,229**	**28,504**	**2,810**	**248,502**	**58,522**	**305,777**
Food Industries	5	406	45	451	11,244	1,602	208,984	21,458	230,494
Beverage Industries	2	*	*	*	*	*	*	*	*
Textile Products Industries	3	*	*	*	*	*	*	*	*
Wood Industries	6	35	6	41	727	57	1,195	818	2,058
Printing, Publishing & Allied Inds.	12	139	135	274	5,640	132	2,956	11,283	14,377
Fabricated Metal Products Industries	8	*	*	*	*	*	*	*	*
Machinery Industries	6	*	*	*	*	*	*	*	*
Transportation Equipment Industries	2	*	*	*	*	*	*	*	*
Electrical and Electronic Products Inds.	2	*	*	*	*	*	*	*	*
Non-Metallic Mineral Products Inds.	3	21	3	24	674	245	2,403	828	3,490
Other Manufacturing Industries	5	11		16	275	11	403	443	857

TABLE 2.9

PRINCIPAL MANUFACTURING STATISTICS BY INDUSTRY. MEDICINE HAT & AREA, ALBERTA, 1983

Industry Group and Industry	Reporting Establish-ents	Employees			Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials and Supplies Used	Value Added	Value of Shipments of Goods of Own Mfr.
		Male	Female	Total					
	No.	No.	No.	No.	$000	$000	$000	$000	$000
Total All Industries	**47**	**1,504**	**354**	**1,858**	**52,662**	**63,298**	**175,899**	**142,647**	**402,380**
Food Industries	6	165	31	196	4,889	543	37,257	10,386	48,033
Rubber Products Industries	1	·	·	·	·	·	·	·	·
Wood Industries	3	4	·	4	77	6	367	43	416
Paper & Allied Products Industries	1	·	·	·	·	·	·	·	·
Printing, Publishing & Allied Inds.	7	124	49	173	3,648	145	4,105	8,556	12,800
Primary Metal Industries	1	·	·	·	·	·	·	·	·
Fabricated Metal Products Industries	5	66	6	72	1,575	83	2,364	3,043	5,787
Machinery Industries	1	·	·	·	·	·	·	·	·
Non-Metallic Mineral Products Inds.	12	474	204	678	17,289	3,464	16,180	27,533	46,347
Chemical & Chemical Products Industries	4	500	53	553	21,234	58,600	103,657	84,116	267,541
Miscellaneous Manufacturing Industries	7	·	·	·	·	·	·	·	·

TABLE 2.10

ANNUAL INVESTMENT IN MANUFACTURING, BY INDUSTRIAL GROUP - ALBERTA - 1956-1986 (MILLIONS OF DOLLARS)

	Food & Beverages	Iron & Steel Products	Wood	Transportation Equipment	Metal Fabricating	Non-metallic Mineral Products	Petroleum Products	Other	Total
1956	10.3	10.9	5.6	1.4	-	16.1	23.6	98.9	166.8
1957	8.5	6.8	3.6	1.6	-	5.3	19.9	65.3	111.0
1958	9.3	3.6	2.5	1.7	-	5.3	45.6	73.4	141.4
1959	10.6	8.9	3.7	1.1	-	11.6	35.8	74.2	145.8
1960	11.7	-	2.9	-	2.6	12.4	8.7	54.7	93.0
1961	12.2	-	2.5	-	1.7	7.2	3.9	33.3	60.8
1962	14.7	-	3.1	-	2.2	7.2	6.1	45.5	78.8
1963	13.5	-	3.9	-	1.9	9.7	4.4	35.8	69.2
1964	14.0	-	4.0	-	2.5	6.8	5.1	55.9	88.3
1965	15.0	-	4.3	-	3.1	10.2	3.8	78.0	109.4
1966	16.6	-	4.2	-	3.6	12.3	4.2	66.6	107.5
1967	21.2	-	7.3	-	3.4	13.1	-	68.4	113.4
1968	19.5	-	8.3	-	3.1	8.9	-	103.9	143.7
1969	22.4	-	7.8	-	4.7	12.1	-	88.4	135.4
1970	31.7	-	8.6	-	4.1	12.0	-	127.1	183.5
1971	33.2	-	16.0	-	4.8	13.2	-	119.3	186.5
1972	34.7	-	16.8	-	6.8	15.3	-	172.3	245.9
1973	39.7	-	18.7	-	7.6	22.2	-	305.9	394.1
1974	49.1	-	14.4	-	10.0	46.1	-	296.3	415.9
1975	60.4	-	25.5	-	12.5	37.4	-	305.2	441.0
1976	60.2	-	38.0	-	12.7	48.9	-	431.9	591.7
1977	78.3	-	23.2	-	8.2	71.5	-	480.1	661.3
1978	74.2	-	26.0	-	7.9	72.5	-	729.8	910.4
1979	72.7	-	47.4	-	8.1	154.6	-	789.2	1,072.0
1980	89.4	-	49.4	-	23.8	152.9	-	696.3	1,011.8
1981	79.0	-	72.8	-	26.3	119.4	-	1,576.1	1,873.6
1982	127.5	-	45.5	-	37.4	76.1	-	2,595.0	2,881.5
1983	134.8	-	52.3	-	18.8	53.2	-	1,679.0	1,938.1
1984	107.7	-	35.4	-	32.4	47.0	-	902.9	1,125.4
1985	94.0	-	35.1	-	19.8	49.0	-	646.9	844.8
1986	96.3	-	37.1	-	15.5	53.9	-	694.1	896.9

- Figures Confidential; included in other
1985 - Preliminary Actual; 1986 - Intentions
Source: Statistics Canada Private and Public Investment in Canada Cat. No's - 61-205 and 61-206 and Cansim Matrix #1255 & 1077.

TABLE 2.11

FARM CASH RECEIPTS FROM FARMING OPERATIONS — ALBERTA - 1971-1976 - 1981-86

	1971	1976	1981	1982	1983	1984	(P) 1985
Total Cash Receipts	**795.0**	**1,908.7**	**3,867.6**	**3,796.8**	**3,734.4**	**3,944.6**	**3,861.0**
Total from Crops	**318.2**	**916.6**	**2,105.3**	**1,947.0**	**2,029.2**	**2,079.5**	**1,969.5**
Wheat	128.9	342.2	917.8	847.6	868.8	906.6	582.0
Oats	8.2	24.2	25.4	24.1	22.1	23.3	16.2
Barley	77.9	213.4	414.2	401.5	353.4	288.7	197.6
Rye	2.4	8.8	29.9	19.1	15.9	14.2	5.0
Flax seed	12.5	12.4	16.0	14.3	16.4	7.1	7.2
Canola	45.7	80.5	278.7	241.5	330.3	388.3	338.1
Sugar Beets	10.6	20.8	38.3	18.6	27.0	17.8	3.3
Potatoes	7.7	13.5	22.3	21.6	21.3	26.7	27.8
Vegetables	2.9	7.5	15.8	15.3	19.9	20.2	24.9
Horticulture & Nursery	-	10.6	23.1	25.7	26.4	24.9	26.2
Other Crops	11.1	19.3	41.5	32.5	35.3	34.2	40.4
Other Sources (1)	10.3	153.4	282.3	285.2	292.4	327.5	700.8
Total from Livestock & Products	**463.3**	**928.2**	**1,697.7**	**1,685.7**	**1,680.7**	**1,816.2**	**1,826.8**
Cattle & Calves	290.3	637.9	1,175.4	1,101.3	1,116.3	1,162.6	1,188.1
Hogs	78.6	111.3	190.8	220.0	201.3	254.7	245.8
Sheep & Lambs	1.7	4.2	4.4	5.2	4.5	5.1	6.6
Dairy Products	46.8	92.7	174.0	208.9	209.3	226.3	229.1
Poultry	22.5	41.0	78.3	81.0	77.7	91.9	87.5
Eggs	13.9	25.3	45.6	42.7	44.6	46.7	44.4
Other Livestock Products	9.4	15.8	29.2	26.7	27.1	28.9	25.3
Other Receipt Sources (2)	**13.4**	**63.9**	**64.6**	**164.1**	**24.5**	**48.9**	**64.7**
Forest Products	.5	.8	2.5	2.5	2.7	2.7	2.7
Dairy Supplementary Payments	6.7	17.3	17.3	17.9	18.2	19.5	18.6
Deficiency Payments	.6	3.9	14.2	1.9	3.6	10.6	2.1
Prov. Income Stabilization Prgram	-	41.9	-	-	-	-	11.1

Source: Statistics Canada - Agriculture Economic Statistics Cat. No. 21-603E and 21-202

(P) - preliminary
(1) Includes Canada Wheat Board Payments, Western Grain Stabilization Payments, Crop Insurance Payments, Deferred Grain Receipts, and Liquidation of Deferred Grain Receipts
(2) Includes Supplementary Payments

TABLE 2.12

FARM MACHINERY AND EQUIPMENT, BY TYPE, BY CENSUS DIVISION - ALBERTA - 1981 (NUMBER)

	Alberta Total	CD 1	CD 2	CD 3	CD 4	CD 5	CD 6	CD 7
Automobiles	61,950	1,921	4,769	2,269	1,542	3,621	5,191	4,212
Motor Trucks	123,835	4,909	11,471	5,378	4,334	9,151	9,067	9,129
Tractors	124,214	4,059	9,618	4,318	4,004	7,308	8,573	8,849
Grain Combines	42,663	1,407	2,802	1,286	1,326	2,877	2,291	3,375
Swathers	47,601	1,821	3,627	1,951	1,840	4,010	3,220	3,885
Balers	35,870	1,032	2,326	1,372	1,139	1,651	2,546	2,522
Forage Crop Harvesters	4,440	107	383	132	122	266	347	402
Other Machinery and Equipment (Value - million $)	1,042.3	49.5	139.3	39.0	31.7	75.0	66.8	76.8

TABLE 2.13

CENSUS FARMS BY NUMBER, AREA, TYPE OF OPERATOR AND BY GROSS VALUE OF PRODUCTS SOLD, BY CENSUS DIVISION - ALBERTA - 1981

	Alberta	CD 1	CD 2	CD 3	CD 4	CD 5	CD 6	CD 7
Number of Farms	58,056	1,811	3,820	2,029	1,588	3,185	4,312	3,858
Hectares '000	19,109	1,495	1,535	1,037	1,944	1,489	1,130	1,799
Average Farm Size, Hectares	329	826	402	511	1,225	468	262	466
Number of Farms Operated, Classified by Form of Tenure of Operator Owners	33,850	876	2,208	1,078	307	1,443	2,577	1,812
Tenants	3,675	148	336	190	128	337	371	308
Part Owner, Part Tenant	20,531	787	1,276	761	1,153	1,405	1,364	1,738
Farms Reporting 1980 Sales of: $250,000 and Over	1,697	73	339	151	42	164	222	132
$100,000-$249,999	5,630	285	716	299	258	583	500	587
$50,000-$99,999	9,873	519	995	376	459	946	702	981
$25,000-$49,999	11,049	441	721	389	402	682	705	858
$10,000-$24,999	12,003	280	528	371	255	476	752	685
$5,000-$9,999	6,387	102	213	157	92	150	470	271
$2,500-$4,999	4,525	56	141	107	42	84	359	164
Under $2,500	6,892	55	167	179	38	100	602	180

CD 8	CD 9	CD 10	CD 11	CD 12	CD 13	CD 14	CD 15	
5,998	71	7,237	8,243	2,809	5,386	780	7,901	Automobiles
11,078	112	14,602	12,342	5,310	9,505	1,154	16,293	Motor Trucks
11,808	124	15,522	14,287	6,370	11,547	1,620	16,207	Tractors
3,456	4	6,341	4,178	2,265	3,823	301	6,931	Grain Combines
3,759	21	6,398	4,436	2,348	3,738	306	6,241	Swathers
3,819	46	4,647	4,665	2,349	3,958	616	3,182	Balers
609	3	487	623	233	340	68	318	Forage Crop Harvesters
91.0	0.6	113.0	101.2	37.8	75.3	8.0	137.3	Other Machinery and Equipment (Value - million $)

Source: Census of Canada - 1981

CD 8	CD 9	CD 10	CD 11	CD 12	CD 13	CD 14	CD 15	
5,606	68	7,124	7,018	3,138	5,442	818	8,239	Number of Farms
1,103	63	1,906	1,083	774	1,121	158	2,472	Hectares '000
197	919	268	154	246	206	193	300	Average Farm Size, Hectares
3,500	36	3,897	4,455	2,068	3,641	572	5,380	Number of Farms Operated, Classified by Form of Tenure of Operator Owners
335	5	464	391	121	170	26	345	Tenants
1,771	27	2,763	2,172	949	1,631	220	2,514	Part Owner, Part Tenant
185	4	135	124	20	57	5	44	Farms Reporting 1980 Sales of: $250,000 and Over
598	9	636	432	118	259	14	336	$100,000-$249,999
938	4	1,190	819	297	587	43	1,017	$50,000-$99,999
1,040	13	1,555	1,095	514	993	86	1,555	$25,000-$49,999
1,175	10	1,709	1,506	774	1,315	140	2,027	$10,000-$24,999
642	9	795	960	476	766	134	1,150	$5,000-$9,999
448	7	485	801	349	548	111	823	$2,500-$4,999
580	12	619	1,281	590	917	285	1,287	Under $2,500

Source: Census of Canada - 1981

TABLE 2.14

CENSUS FARMS WITH SALES OVER $2,500 BY MAJOR PRODUCT, BY CENSUS DIVISION - ALBERTA - 1980

	Alberta	CD 1	CD 2	CD 3	CD 4	CD 5	CD 6	CD 7
Farms with Sales $2,500 or More	51,164	1,756	3,653	1,850	1,550	3,085	3,710	3,678
Major Product Type:								
Dairy	2,743	47	165	71	33	62	219	88
Cattle	16,098	491	1,036	860	546	454	1,617	1,278
Hogs	1,402	17	124	41	7	78	85	60
Poultry	622	8	44	21	4	50	49	20
Wheat	7,378	821	939	231	707	1,223	164	703
Small Grains	16,493	172	581	432	162	1,008	1,060	1,191
Other Field Crops	1,122	50	367	23	3	16	91	16
Fruits & Vegetables	76	4	28	-	-	1	4	-
Miscellaneous Specialty	1,574	55	92	66	13	38	229	38
Mixed Farms	3,656	91	277	105	75	155	192	284
Livestock	2,515	42	109	60	31	103	125	187
Field Crops	112	6	91	1	-	-	-	2
Other Combination	1,029	43	77	44	44	52	67	95

TABLE 2.15

ANIMAL SLAUGHTERINGS IN FEDERALLY INSPECTED ESTABLISHMENTS - ALBERTA - 1959-1985 (NUMBER)

Year	Cattle	Calves	Hogs	Sheep & Lambs	Year	Cattle	Calves	Hogs	Sheep & Lambs
1959	376,486	65,420	1,684,782	84,311	1972	1,112,338	15,072	1,864,356	52,885
1960	440,431	76,622	1,334,369	75,106	1973	1,112,301	12,641	1,761,077	67,754
1961	534,173	68,812	1,246,451	88,852	1974	1,131,523	27,964	1,596,708	51,024
1962	562,166	71,140	1,351,535	95,132	1975	1,352,116	59,692	1,230,721	70,627
1963	606,293	53,143	1,138,419	104,209	1976	1,537,610	45,539	1,088,959	75,996
1964	686,084	67,293	1,381,411	105,812	1977	1,590,184	40,855	1,156,998	45,254
1965	746,674	86,811	1,429,677	79,523	1978	1,381,304	18,670	1,162,697	32,413
1966	813,669	70,275	1,196,402	66,081	1979	1,256,614	4,262	1,415,571	32,963
1967	846,419	67,312	1,407,583	60,868	1980	1,251,181	4,181	1,738,061	38,530
1968	899,931	63,656	1,541,046	50,854	1981	1,294,827	8,009	1,686,835	56,849
1969	860,475	31,562	1,268,145	40,911	1982	1,320,551	6,786	1,569,539	77,748
1970	895,320	18,917	1,515,573	36,331	1983	1,308,027	4,869	1,599,267	93,622
1971	1,015,967	17,879	1,972,024	45,199	1984	1,320,557	6,786	1,569,539	112,794
					1985	1,294,827	8,009	1,686,835	91,664

Source: Alberta Agriculture

CD 8	CD 9	CD 10	CD 11	CD 12	CD 13	CD 14	CD 15	
5,026	56	6,505	5,737	2,548	4,525	533	6,952	Farms with Sales $2,500 or More
								Major Product Type:
460	1	330	676	122	286	42	141	Dairy
2,525	37	1,210	2,008	940	1,826	313	957	Cattle
206	1	151	213	110	215	9	85	Hogs
28	-	103	140	29	55	15	56	Poultry
57	-	1,144	211	133	132	15	898	Wheat
1,228	3	2,735	1,578	782	1,358	51	4,152	Small Grains
77	3	29	160	39	66	27	155	Other Field Crops
4	-	1	14	2	4	3	11	Fruits & Vegetables
184	8	82	349	71	133	30	186	Miscellaneous Specialty
257	3	720	388	320	450	28	311	Mixed Farms
172	2	583	284	260	366	26	165	Livestock
-	-	1	2	-	2	-	7	Field Crops
85	1	136	102	60	82	2	139	Other Combination

Source: Census of Canada 1981

TABLE 2.16

LIVESTOCK AND POULTRY ON CENSUS FARMS, BY CENSUS DIVISION - ALBERTA - 1981 (NUMBERS IN THOUSANDS)

		Census Divisions														
	Alberta	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cattle	4,193	192	453	309	247	288	405	354	492	13	366	339	178	330	48	179
Pigs	1,229	26	154	60	18	108	62	73	196	30	139	116	67	129	4	47
Sheep	181	4	30	47	1	7	-	3	22	-	12	15	4	17	3	16
Horses	120	3	5	6	5	5	15	8	15	2	10	15	7	9	2	13
Goats	10	0	0	-	0	0	1	0	2	-	1	2	1	2	0	1
Rabbits	24	0	9	-	0	0	1	1	2	-	1	4	1	3	0	2
Chickens	9,192	194	1,198	469	84	1,051	1,188	327	260	1	1,140	1,945	228	737	35	335
Turkeys	748	15	77	-	1	176	-	6	5	-	80	219	14	146	1	8
Geese	69	5	9	7	2	6	3	5	5	0	7	7	3	5	1	4
Ducks	123	9	16	19	5	16	-	7	7	-	15	18	3	4	0	4

Source: Census of Canada 1981

TABLE 2.17

INCOME OF FARM OPERATORS FROM FARMING OPERATIONS - ALBERTA - 1971, 1976 AND 1981-1985 (MILLIONS OF DOLLARS)

	1971	1976	1981	1982	1983	1984	1985*
Receipts from Farm Operations	789.4	1,909.8	3,860.4	3,683.8	3,729.2	3,945.7	3,800.5
Income-in-Kind	16.1	25.2	40.4	37.0	37.1	39.0	35.8
Supplementary Payments	5.6	-	30.6	141.6	-	16.1	30.2
Realized Gross Income	811.1	1,934.9	3,931.4	3,862.4	3,766.4	4,000.8	3,866.5
Operating and Depreciation Charges	605.0	1,476.0	3,205.5	3,232.7	3,191.0	3,359.2	3,317.3
Realized Net Income	206.1	458.9	725.9	629.6	575.3	641.6	549.2
Value of Inventory Charges	16.7	81.5	68.4	-84.9	-211.6	-358.6	-184.2
Total Gross Income	**827.9**	**2,016.4**	**3,999.8**	**3,777.5**	**3,554.8**	**3,642.2**	**3,682.3**
Total Net Income	**222.8**	**540.4**	**794.3**	**544.8**	**363.8**	**283.0**	**365.0**

Source: Statistics Canada: Agriculture Economic Statistics; Cat. No. 21-603E

TABLE 2.18

FARM OPERATING EXPENSES AND DEPRECIATION CHARGES - ALBERTA 1971, 1976, AND 1981-1985 (MILLIONS OF DOLLARS)

	1971	1976	1981	1982	1983	1984	1985
Operating Expenses							
Taxes	20.4	26.7	40.2	43.4	45.0	44.0	47.8
Gross Farm Rent	31.4	74.3	155.4	170.0	183.5	189.0	184.0
Wages	39.5	81.7	164.5	182.3	193.9	195.9	200.6
Interest on Indebtedness	57.5	159.4	545.2	509.6	392.4	442.3	418.0
Machinery Repair & Other Expenses	130.6	262.6	514.7	525.6	557.1	545.3	557.2
Fertilizer & Lime	30.0	107.2	280.3	288.4	315.0	336.1	357.9
Other Crop Expenses	22.3	59.8	147.6	168.4	181.9	203.6	207.9
Feed	50.7	139.6	260.0	243.2	206.7	261.1	226.8
Other Livestock Expenses	25.9	72.0	136.2	126.2	117.1	143.7	122.1
Repairs to Buildings	12.4	38.7	50.7	49.5	45.6	45.2	45.7
Electricity & Telephones	21.4	34.0	52.4	54.1	55.5	60.3	61.5
Miscellaneous	42.7	110.2	189.4	181.9	211.8	231.8	239.1
Total Operating Expenses	**484.7**	**1,166.3**	**2,536.6**	**2,542.6**	**2,505.6**	**2,698.3**	**2,668.6**
Depreciation Charges	120.3	309.8	668.9	690.1	685.5	660.9	648.7
Buildings	16.0	47.0	126.2	125.6	117.2	107.4	100.9
Machinery	104.3	262.8	542.8	564.5	568.3	553.5	547.8
Total Operating Expenses & Depreciation Charges	**605.0**	**1,476.0**	**3,205.5**	**3,232.7**	**3,191.0**	**3,359.2**	**3,317.3**

Source: Statistics Canada: Agriculture Economic Statistics; Cat. No. 21-603E

TABLE 2.19

PRINCIPAL STATISTICS OF THE MINING INDUSTRY - ALBERTA - 1965-1981

	Establishments	Employees	Salaries & Wages	Cost of Fuel & Electricity	Cost of Materials & Supplies	Value of Production	Value Added
	No.		($ 000)	($ 000)	($ 000)	($ 000)	($ 000)
1965	295	11,553	80,228	10,094	22,088	722,706	690,524
1966	278	11,954	89,913	8,378	25,104	808,627	775,145
1967	285	12,745	105,615	8,747	27,996	935,052	898,310
1968	293	13,568	119,828	10,087	21,748	1,061,678	1,019,853
1969	324	14,182	135,627	12,200	33,627	1,154,431	1,108,604
1970	324	15,569	155,438	15,865	49,007	1,324,474	1,259,603
1971	339	16,718	180,601	18,735	53,645	1,552,148	1,479,769
1972	379	17,229	200,735	22,600	59,813	1,870,250	1,787,838
1973	390	17,109	213,756	27,895	65,843	2,631,734	2,537,996
1974	290	18,614	261,164	34,429	91,651	4,326,859	4,200,779
1975	279	18,988	292,158	37,374	118,100	5,501,665	5,346,191
1976	266	20,290	361,412	54,699	189,553	6,532,169	6,287,917
1977	271	21,533	415,373	59,619	216,948	8,062,203	7,785,636
1978	255	23,404	483,070	73,051	202,872	9,303,625	9,027,701
1979	265	25,507	570,154	83,234	257,023	11,608,881	11,268,624
1980	334	28,429	703,632	102,115	334,530	13,935,960	13,499,315
1981	375	29,399	811,623	124,635	461,484	15,148,050	14,561,930
1982	331	31,998	1,041,199	165,097	551,310	17,808,933	17,092,526
1983	382	33,616	1,222,369	204,008	603,593	20,492,355	19,684,752

Source Statistics Canada - General Review of the Mineral Industries Cat No 26-201

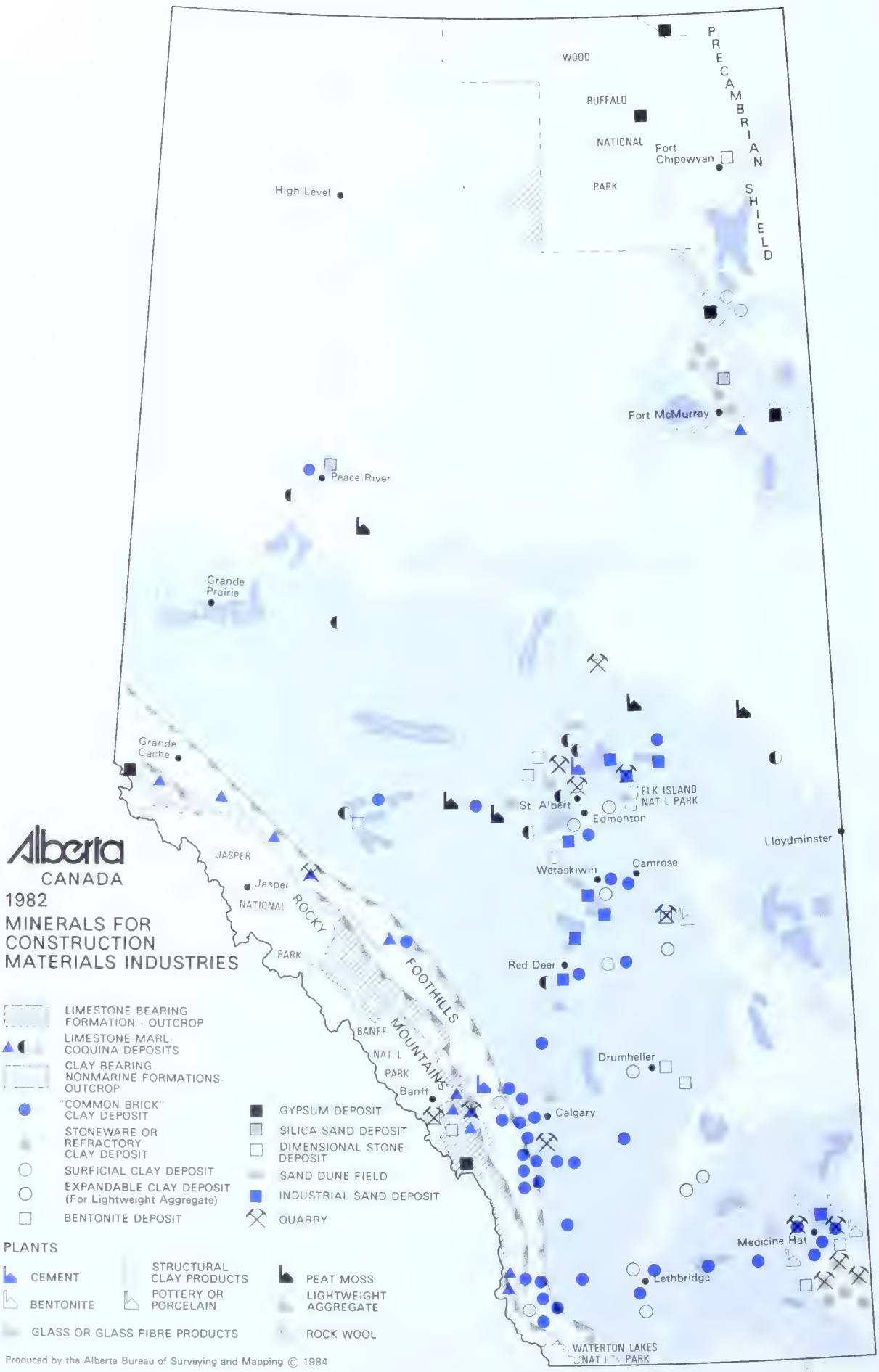

Alberta
CANADA
1982
MINERALS FOR CONSTRUCTION MATERIALS INDUSTRIES
WOOD BUFFALO NATIONAL PARK
PRECAMBRIAN SHIELD
High Level
Fort Chipewyan
Fort McMurray
Peace River
Grande Prairie
Grande Cache
JASPER NATIONAL PARK
Jasper
ROCKY MOUNTAINS
FOOTHILLS
BANFF NAT L PARK
Banff
St Albert
Edmonton
ELK ISLAND NAT L PARK
Lloydminster
Wetaskiwin
Camrose
Red Deer
Drumheller
Calgary
Medicine Hat
Lethbridge
WATERTON LAKES NAT L PARK
LIMESTONE BEARING FORMATION - OUTCROP
LIMESTONE-MARL-COQUINA DEPOSITS
CLAY BEARING NONMARINE FORMATIONS-OUTCROP
"COMMON BRICK" CLAY DEPOSIT
STONEWARE OR REFRACTORY CLAY DEPOSIT
SURFICIAL CLAY DEPOSIT
EXPANDABLE CLAY DEPOSIT (For Lightweight Aggregate)
BENTONITE DEPOSIT
GYPSUM DEPOSIT
SILICA SAND DEPOSIT
DIMENSIONAL STONE DEPOSIT
SAND DUNE FIELD
INDUSTRIAL SAND DEPOSIT
QUARRY
PLANTS
CEMENT
BENTONITE
STRUCTURAL CLAY PRODUCTS
POTTERY OR PORCELAIN
GLASS OR GLASS FIBRE PRODUCTS
PEAT MOSS
LIGHTWEIGHT AGGREGATE
ROCK WOOL
Produced by the Alberta Bureau of Surveying and Mapping © 1984

TABLE 2.20

VOLUME AND VALUE OF MINERAL PRODUCTION - ALBERTA - SPECIFIED YEARS - 1941-1985

		1941	1951	1961	1971	1981	1985ff
Fuels							
Coal	'000 Tonnes	6,323	6,948	1,840	7,269	18,446	24,350
	$ 000	19,382	40,982	10,473	42,418	325,750	458,500
Natural Gas	'000 000 m^3	-	-	-	58,243	64,306	70,869
	$ 000	5,175	3,494	53,830	290,672	5,993,990	7,278,483
Natural Gas By-Products	'000 m^3	-	-	-	13,056	18,526	19,240
	$000	-	-	15,555	186,339	2,062,154	2,687,226
Petroleum, Crude	'000 m^3	1,576	7,296	25,078	59,035	64,274	69,213
	$ 000	13,986	113,870	380,171	1,055,769	8,303,712	15,786,925
Structural Materials							
Clay Products	$000	1	1,788	3,517	4,031	15,308	7,550
Cement	'000 Tonnes	78	262	615	770	1,445	1,007
	$ 000	1,000	3,898	12,420	18,736	94,848	118,779
Lime	'000 Tonnes	16	28	44	91	183	147
	$ 000	151	395	838	2,034	11,047	10,305
Sand and Gravel*	'000 Tonnes	867	3,891	11,423	16,946	26,465	44,600
	$ 000	434	3,194	10,927	16,285	97,323	109,000
Stone	'000 Tonnes	7	12	88	167	271	180
	$ 000	24	47	337	709	2,017	2,324
Non-Metallics							
Peat Moss	'000 Tonnes	-	-	-	10	45	50
	$ 000	5	-	-	319	6,512	10,164
Quartz	$ 000	-	-	-	72	3,173	4,700
Sodium Sulphate	$ 000	-	-	-	1,242	3,030	3,482
Sulphur Elemental	'000 Tonnes	-	-	308	2,733	7,709	7,995
	$ 000	-	-	6,133	19,589	626,140	851,763
Salt	'000 Tonnes	15	18	76	222	855	1,403
	$ 000	261	473	1,355	2,292	13,638	16,218
Metals							
Gold	Grams	6,687	3,017	5,319	2,457	48	8
	$ 000	8	4	6	3	847	117
Silver	Grams	653	280	529	-	-	-
	$ 000	8	8	16	-	2	-
Total Value	**$ 000**	**41,364**	**168,144**	**495,563**	**1,640,508**	**17,559,491**	**27,346,016**

ff Preliminary

* Sand and gravel are not legally minerals in Alberta but are part of the surface in accordance with the Sand and Gravel Act 1951

Source: Statistics Canada, Canada's Mineral Production Cat. No. 26-202

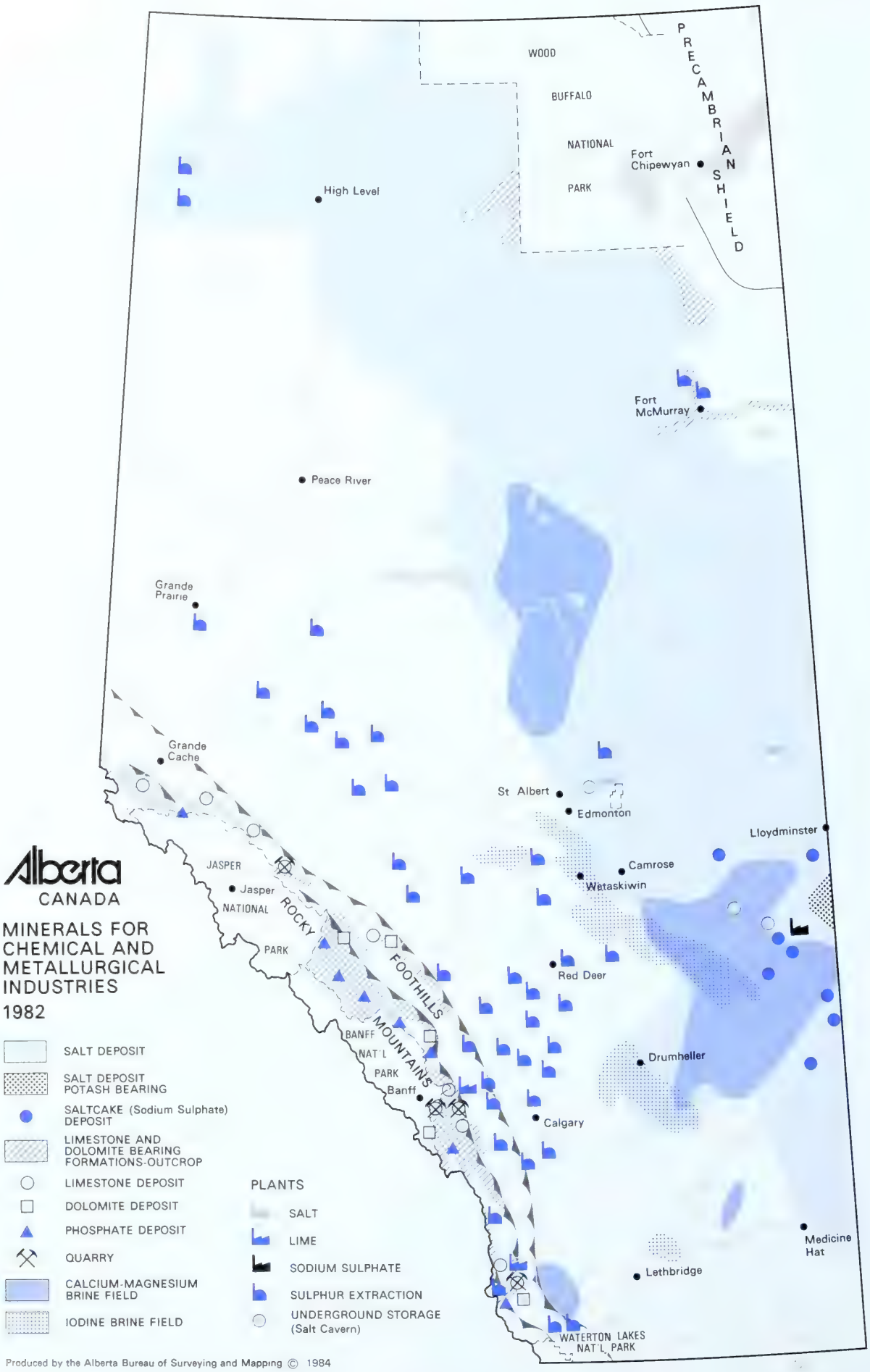

WOOD
BUFFALO
NATIONAL
PARK
PRECAMBRIAN SHIELD
Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St Albert
Edmonton
Lloydminster
Camrose
Wetaskiwin
Red Deer
Drumheller
Calgary
Banff
JASPER NATIONAL PARK
ROCKY MOUNTAINS
FOOTHILLS
BANFF NAT'L PARK
Jasper
Medicine Hat
Lethbridge
WATERTON LAKES NAT'L PARK
Alberta
CANADA
MINERALS FOR CHEMICAL AND METALLURGICAL INDUSTRIES
1982
SALT DEPOSIT
SALT DEPOSIT POTASH BEARING
SALTCAKE (Sodium Sulphate) DEPOSIT
LIMESTONE AND DOLOMITE BEARING FORMATIONS-OUTCROP
LIMESTONE DEPOSIT
DOLOMITE DEPOSIT
PHOSPHATE DEPOSIT
QUARRY
CALCIUM-MAGNESIUM BRINE FIELD
IODINE BRINE FIELD
PLANTS
SALT
LIME
SODIUM SULPHATE
SULPHUR EXTRACTION
UNDERGROUND STORAGE (Salt Cavern)
Produced by the Alberta Bureau of Surveying and Mapping © 1984

TABLE 2.21

VOLUME OF MINERAL PRODUCTION* - ALBERTA AND CANADA - 1971, 1981, 1983 & 1985

	Units	1971		1981		1983		1985	
		Alberta	Canada	Alberta	Canada	Alberta	Canada	Alberta	Canada
Fuels									
Coal	'000 Tonnes	7,269	16,721	18,446	40,088	21,400	44,250	24,350	60,480
Natural Gas	'000 000 m^3	58,243	70,407	64,306	73,824	61,632	69,266	70,869	80,181
Natural Gas By-Products	'000 m^3	13,056	13,607	18,526	18,883	17,097	17,408	19,240	19,674
Petroleum, Crude	'000 m^3	59,035	78,300	64,274	74,553	64,464	76,874	69,213	84,311
Non-Metallics									
Peat Moss	'000 Tonnes	10	343	45	462	44	544	50	586
Salt	'000 Tonnes	22	5,028	855	7,240	1,195	8,590	1,403	10,043
Sulphur, Elemental	'000 Tonnes	2,733	2,857	7,709	8,018	6,015	6,327	7,995	8,250
Structural Materials									
Cement	'000 Tonnes	770	8,234	1,445	10,145	1,260	7,828	1,007	9,772
Lime	'000 Tonnes	91	1,491	183	2,555	159	2,126	147	2,010
Sand & Gravel	'000 Tonnes	16,946	193,494	26,465	260,134	42,500	199,293	44,600	223,724
Stone	'000 Tonnes	167	66,692	271	85,091	125	62,359	180	77,930
Metals									
Gold	'000 g	2	64,091	48	52,034	21	70,746	8	86,044
Silver	'000 kg	-	1,305	-	1,129	-	1,106	-	1,209

*Only minerals produced in Alberta are compared with Canada totals

Source: Statistics Canada, Canada's Mineral Production Cat. No. 26-202

TABLE 2.22

PRODUCTION & DISPOSITION OF SULPHUR - ALBERTA - 1976-1985

	Total Produced '000 Tonnes	Total Marketed '000 Tonnes	Gross Value of Sales $ 000	Delivered To: Alberta '000 Tonnes	Alberta % of Total	Other Provinces '000 Tonnes	Other Provinces % of Total	United States '000 Tonnes	United States % of Total	Offshore '000 Tonnes	Offshore % of Total
1976	6,342	3,964	69,291	302	7.6	306	7.7	926	23.4	2,430	61.3
1977	6,413	5,137	79,256	355	6.9	337	6.6	1,101	21.4	3,344	65.1
1978	6,331	5,650	99,587	408	7.2	385	6.8	1,111	19.7	3,746	66.3
1979	6,160	6,147	155,255	452	7.4	397	6.5	1,175	19.1	4,123	67.0
1980	6,027	7,489	433,616	485	6.5	364	4.9	1,461	19.5	5,179	69.2
1981	5,662	7,709	626,140	474	6.1	368	4.8	1,532	19.9	5,335	69.2
1982	5,299	6,570	551,424	334	5.1	317	4.8	1,166	17.7	4,753	72.4
1983	5,479	6,228	413,393	415	6.7	295	4.7	1,099	17.6	4,419	71.0
1984	5,360	7,954	815,086	419	5.3	276	3.5	1,720	21.7	5,539	69.6
1985	5,446	7,932	1,058,687	430	5.5	249	3.2	1,782	22.8	5,871	75.0

Source: E.R.C.B. - Alberta Energy Resource Industries (ST 84-3)


WOOD
BUFFALO
NATIONAL
PARK
Fort Chipewyan
PRECAMBRIAN SHIELD
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
JASPER
NATIONAL
PARK
Jasper
ROCKY
FOOTHILLS
MOUNTAINS
BANFF
NAT L
PARK
Banff
St Albert
Edmonton
Lloydminster
Camrose
Wetaskiwin
Red Deer
Drumheller
Calgary
Medicine Hat
Lethbridge
WATERTON LAKES
NAT L PARK
Alberta
CANADA
METALLIC MINERALS
URANIUM (Prospective Area)
COPPER
LEAD ZINC
CALCIUM-MAGNESIUM BRINES
IRON FORMATION
MAGNETITE AND TITANIUM
VANADIUM, NICKEL,
TITANIUM AND ZIRCONIUM (Oil Sands Area)
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TABLE 2.23

VALUE OF CONSTRUCTION WORK PERFORMED, BY PRINCIPAL TYPE OF CONSTRUCTION - ALBERTA - 1971, 1981 and 1984-86. (MILLIONS OF DOLLARS)

	1971		1981		1984		1985		1986*	
	$	% of Total	$	% of Total	$	% of Total	$	% of Total	$	% of Total
Building Construction	**865**	**46.9**	**6,378**	**44.0**	**3,330**	**34.6**	**3,436**	**32.1**	**3,877**	**32.8**
Residential	462	25.0	2,830	19.5	1,160	12.2	1,193	11.1	1,453	12.3
Industrial	51	2.8	419	2.9	193	2.0	147	1.4	154	1.3
Commercial	123	6.7	2,130	14.7	1,001	10.5	1,083	10.1	1,211	10.2
Institutional	137	7.4	605	4.2	568	6.0	608	5.7	649	5.5
Other Building	62	3.4	395	2.7	378	4.0	406	3.8	410	3.5
Engineering Construction	**981**	**53.1**	**8,112**	**56.0**	**6,231**	**65.4**	**7,274**	**67.9**	**7,947**	**67.2**
Road, Highway & Aerodrome	143	7.7	859	5.9	712	7.4	797	7.5	797	6.7
Waterworks & Sewage System	46	2.5	434	3.0	366	3.8	335	3.1	354	3.0
Dams & Irrigation	12	0.7	158	1.0	124	1.3	151	1.4	172	1.5
Electric Power	82	4.4	454	3.1	343	3.6	380	3.5	424	3.6
Railway, Telephone & Telegraph	61	3.3	363	2.5	321	3.4	321	3.0	347	2.9
Gas & Oil Facilities	563	30.5	5,291	36.5	4,001	42.0	4,753	44.4	5,184	43.8
Other Engineering	73	4.0	551	3.8	365	3.8	536	5.0	670	5.7
Total	**1,846**	**100.0**	**14,490**	**100.0**	**9,531**	**100.0**	**10,710**	**100.0**	**11,824**	**100.0**

Source: Statistics Canada, Construction in Canada Cat. No. 64-201

*Forecast

TABLE 2.24

DWELLING STARTS BY MONTH, URBAN CENTRES OF 10,000 POPULATION AND OVER - ALBERTA - 1975-1985 (NUMBER)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1975	687	671	813	1,085	1,304	1,688	1,599	1,658	2,435	2,253	2,638	2,762	**19,593**
1976	1,376	2,516	1,755	2,916	2,299	2,102	2,894	2,514	2,403	1,518	2,813	2,007	**28,113**
1977	894	1,315	1,262	2,660	2,945	2,523	2,697	3,497	3,263	2,228	3,377	3,348	**30,009**
1978	3,265	3,333	3,369	2,174	2,473	3,089	3,631	2,959	3,332	3,057	4,503	2,345	**37,530**
1979	3,349	2,062	2,417	2,157	2,741	2,621	2,332	2,697	1,949	2,829	2,769	2,237	**30,160**
1980	1,536	1,436	1,410	1,912	1,904	1,970	2,788	2,399	2,953	2,359	2,812	2,251	**25,730**
1981	2,193	1,454	1,767	3,017	3,873	3,311	2,876	2,672	3,373	2,290	2,736	3,610	**33,172**
1982	2,204	1,406	1,237	2,430	1,960	3,928	2,531	1,055	1,245	1,347	1,567	860	**21,768**
1983	1,325	1,346	908	1,205	2,351	1,815	755	934	661	850	636	470	**13,256**
1984	425	311	349	432	691	574	602	499	361	364	270	332	**5,210**
1985	282	222	187	347	493	558	674	623	727	699	751	481	**6,044**

Source: Statistics Canada - Housing Starts and Completions Cat. No. 64-002

TABLE 2.25

DWELLING STARTS, COMPLETIONS AND UNDER CONSTRUCTION AT YEAR END - ALBERTA AND CENTRES OF OVER 10,000 POPULATION 1971 AND 1980-1985 (UNITS)

	1971	1980	1981	1982	1983	1984	1985
Alberta (All Areas)							
Dwelling Starts	25,602	32,031	38,470	26,789	17,134	7,295	8,337
Completions	20,829	34,717	34,755	31,364	24,693	12,057	7,517
Under Construction	15,320	20,378	22,960	17,663	8,336	2,943	3,518
Edmonton Metro*							
Dwelling Starts	11,256	9,967	11,999	9,738	6,453	2,384	2,528
Completions	8,252	9,996	11,270	10,369	9,055	4,481	2,380
Under Construction	8,096	6,884	6,979	6,432	3,051	805	771
Edmonton Proper							
Dwelling Starts	9,451	8,446	10,517	9,111	5,121	1,877	1,970
Completions	6,634	8,176	9,641	9,546	7,761	3,739	1,889
Under Construction	7,268	5,995	6,278	5,896	2,546	584	600
Calgary Metro							
Dwelling Starts	8,801	11,104	15,172	9,599	4,882	1,803	2,318
Completions	7,738	12,067	12,712	12,036	8,977	3,316	2,009
Under Construction	4,768	7,978	10,373	7,153	2,428	698	1,189
Camrose							
Dwelling Starts	N/A	173	167	127	66	101	31
Completions	N/A	117	282	93	104	31	36
Under Construction	N/A	123	40	73	51	75	70
Fort McMurray							
Dwelling Starts	N/A	810	1,222	406	126	164	265
Completions	N/A	901	807	886	200	243	210
Under Construction	N/A	262	677	187	112	20	74
Grande Prairie							
Dwelling Starts	307	795	314	4	111	94	166
Completions	242	1,010	955	96	93	93	143
Under Construction	184	751	93	2	20	20	43
Lethbridge							
Dwelling Starts	700	491	1,330	527	581	178	142
Completions	864	451	880	848	838	324	138
Under Construction	201	423	726	478	213	62	65

TABLE 2.25 continued

	1971	1980	1981	1982	1983	1984	1985
Lloydminster (Alberta Portion)							
Dwelling Starts	N/A	288	264	136	70	138	230
Completions	N/A	594	277	107	172	88	231
Under Construction	N/A	109	95	124	22	72	70
Medicine Hat							
Dwelling Starts	153	721	856	471	228	108	99
Completions	91	721	872	471	221	130	98
Under Construction	95	333	315	113	107	58	59
Red Deer							
Dwelling Starts	459	1,381	1,848	558	491	164	199
Completions	320	1,436	1,405	1,361	491	497	170
Under Construction	214	813	1,249	420	353	20	47
St. Albert							
Dwelling Starts	693	420	640	294	676	238	211
Completions	383	584	597	319	696	307	195
Under Construction	469	305	319	320	239	138	50

*Edmonton (Metro) includes Fort Saskatchewan, St. Albert, Morinville, Gibbons, Bon Accord, Legal, Strathcona Country No. 20 and Sturgeon M.D. 90

Source: Statistics Canada: Housing Starts and Completions, Cat. No. 64-002

TABLE 2.26

VALUE OF BUILDING PERMITS - CENSUS DIVISIONS AND SELECTED MUNICIPALITIES - ALBERTA - 1971 AND 1978-1985 (THOUSANDS OF DOLLARS)

Census Division	1971	1978	1979	1980	1981	1982	1983	1984	1985
1	**5,239**	**57,233**	**66,450**	**67,159**	**71,782**	**54,820**	**48,550**	**40,432**	**70,111**
Medicine Hat	3,916	44,956	56,979	57,890	54,475	47,277	38,016	29,830	65,383
Redcliff	848	4,505	3,033	4,144	3,683	2,394	820	722	1,047
2	**22,880**	**97,101**	**101,445**	**95,013**	**123,297**	**97,297**	**99,088**	**75,226**	**125,570**
Lethbridge	18,016	56,151	47,277	61,510	89,516	66,414	54,736	42,990	103,377
Brooks	1,373	13,886	9,589	11,531	5,044	2,451	2,265	1,727	8,498
Coaldale	1,008	5,612	4,362	2,980	2,837	2,273	4,412	2,261	1,500
Taber	1,156	4,806	8,618	4,261	7,584	3,052	8,531	16,203	4,756
3	**3,706**	**14,002**	**26,613**	**15,837**	**18,820**	**16,979**	**30,265**	**9,748**	**9,620**
Cardston	614	1,348	12,773	718	1,071	490	2,443	3,362	4,694
Claresholm	1,731	2,999	3,094	6,129	3,893	2,275	1,391	1,603	2,028
Fort Macleod	219	2,377	2,434	1,098	1,748	1,350	14,690	2,243	888
4	**461**	**3,438**	**6,958**	**3,179**	**7,609**	**9,442**	**4,292**	**1,438**	**2,805**
5	**1,925**	**20,918**	**24,608**	**23,790**	**28,316**	**52,459**	**19,737**	**11,001**	**13,859**
Drumheller	1,261	5,921	5,104	6,950	6,211	11,947	2,356	3,010	2,159

TABLE 2.26 continued

Census Division	1971	1978	1979	1980	1981	1982	1983	1984	1985
6	**200,254**	**1,132,534**	**1,232,660**	**1,561,990**	**2,602,121**	**1,164,720**	**465,107**	**449,807**	**538,181**
Calgary	193,335	1,052,743	1,103,037	1,394,374	2,445,479	1,051,459	410,622	398,415	474,279
Airdrie	488	18,105	31,652	39,472	43,215	21,377	9,422	14,511	4,571
Cochrane	324	10,186	11,131	6,826	7,083	5,448	2,695	1,067	2,977
Didsbury	130	3,827	3,703	2,646	5,410	14,257	2,561	1,194	1,372
High River	521	713	8,456	16,466	9,467	6,053	4,454	3,270	1,915
Okotoks	178	4,637	8,105	19,436	18,245	20,752	2,971	46	141
Olds	744	10,755	9,597	5,507	4,751	4,128	2,370	2,357	13,784
7	**1,905**	**19,498**	**28,508**	**19,127**	**18,032**	**27,518**	**30,522**	**11,612**	**27,297**
Stettler	532	6,893	9,007	4,301	5,132	2,741	3,761	1,587	13,346
Wainwright	452	3,988	8,058	3,253	5,527	13,539	9,516	137	2,569
8	**15,396**	**173,250**	**178,387**	**191,850**	**220,005**	**111,025**	**95,957**	67,664	**70,212**
Red Deer	9,264	104,452	99,041	116,963	120,594	50,943	47,855	27,084	38,308
Innisfail	364	13,703	8,046	13,476	7,697	2,225	2,122	2,104	4,825
Lacombe	521	6,138	11,523	3,297	9,111	18,259	2,059	2,742	2,601
Ponoka	435	3,374	4,773	6,857	4,440	2,717	3,225	13,061	3,411
Rocky Mountain House	2,008	11,979	7,651	7,852	5,957	9,974	3,535	2,370	3,366
Sylvan Lake	251	7,743	7,330	2,281	2,573	1,974	1,599	1,055	753
9	**5,680**	**24,679**	**44,434**	**41,491**	**68,001**	**50,486**	**27,226**	**20,015**	**30,021**
Banff	2,786	11,079	22,191	19,268	13,298	14,410	11,490	11,180	8,113
Canmore	574	3,710	11,021	14,145	10,339	19,695	8,030	2,660	6,221
Crowsnest	627	2,733	9,128	3,260	7,773	12,073	4,723	3,336	12,989
Jasper	-	1,170	488	3,354	31,396	1,465	1,120	1,989	1,207
10	**7,235**	**99,682**	**102,725**	**90,203**	**73,306**	**50,398**	**63,971**	**77,448**	**61,110**
Camrose	2,420	14,232	13,796	16,521	19,415	12,130	13,809	8,460	10,531
Lloydminster	2,352	40,436	38,938	32,493	20,785	9,110	13,901	21,899	33,009
Vegreville	515	20,307	8,933	9,836	8,049	11,479	3,473	3,698	3,542
Vermilion	435	3,742	15,616	13,129	5,449	6,653	14,272	7,397	2,719
11	**242,121**	**1,084,770**	**1,115,277**	**1,675,800**	**1,512,132**	**1,042,474**	**771,772**	**415,025**	**625,379**
Edmonton (Metro)	223,997	938,166	985,886	1,269,933	1,374,132	915,824	688,588	378,760	563,184
Edmonton (Proper)	166,028	723,222	761,723	843,057	1,137,555	778,242	582,284	319,438	476,039
St. Albert	10,273	36,578	45,957	41,202	76,228	46,028	34,845	24,606	32,619
Wetaskiwin	1,589	17,309	12,418	14,225	16,528	9,471	12,151	1,652	5,911
Devon	541	2,470	3,289	4,572	6,747	20,903	3,786	924	393
Drayton Valley	2,053	9,724	7,841	10,088	1,749	18,796	2,623	1,044	5,622
Fort Saskatchewan	3,210	33,588	19,923	8,800	13,262	8,070	7,879	7,433	2,942
Leduc	3,483	20,897	24,610	19,647	18,138	10,775	13,823	10,136	24,179
Morinville	271	12,684	12,259	7,845	5,410	2,714	8,499	1,584	2,215
Spruce Grove	4,773	8,329	10,809	21,321	20,317	5,349	7,519	4,628	5,433
Stony Plain	1,027	9,943	8,847	12,656	12,802	8,154	11,831	-	1,583
12	**9,263**	**105,729**	**126,493**	**116,081**	**150,635**	**53,372**	**52,157**	**100,804**	**112,187**
Fort McMurray	2,919	54,894	57,521	78,142	108,706	28,024	14,722	23,171	34,452
Bonnyville	1,369	15,730	18,150	8,211	2,678	1,538	4,061	22,132	10,384
Grand Centre	2,144	4,559	10,985	6,354	2,253	1,588	86	1,501	3,185
St. Paul	1,213	5,515	11,111	6,416	4,755	1,420	4,214	1,496	14,930
13	**3,148**	**47,198**	**48,144**	**40,796**	**55,893**	**23,134**	**39,562**	**15,151**	**14,263**
Barrhead	450	4,488	3,509	6,199	11,601	924	13,782	2,186	936
Westlock	1,165	4,881	9,194	6,384	5,077	3,935	4,063	4,452	1,924
Whitecourt	1,082	17,682	10,040	9,392	17,973	4,036	2,089	382	1,481

TABLE 2.26 continued

Census Division	1971	1978	1979	1980	1981	1982	1983	1984	1985
14	**6,635**	**38,495**	**24,694**	**35,669**	**41,062**	**32,070**	**16,498**	**9,840**	**15,763**
Edson	1,728	14,605	8,659	8,302	15,709	9,541	2,727	2,365	12,670
Hinton	2,479	17,925	13,775	18,745	11,090	14,611	8,330	3,618	2,628
15	**19,238**	**115,297**	**227,170**	**193,041**	**141,929**	**124,809**	**106,255**	**81,078**	**81,701**
Grande Prairie	8,095	46,282	102,443	84,937	29,554	53,044	18,160	21,789	19,074
Fairview	707	3,635	3,201	11,354	17,861	1,471	6,131	1,251	4,325
Grande Cache	1,809	921	317	3,861	7,237	683	43,400	459	366
Peace River	1,387	17,155	15,409	7,891	4,002	3,092	4,297	8,254	4,239
Slave Lake	2,075	3,735	8,203	12,485	11,909	3,600	3,554	4,798	19,072
Total Alberta	**545,084**	**3,033,824**	**3,354,566**	**4,022,158**	**5,130,940**	**2,911,003**	**1,870,959**	1,386,289	1,798,079

Edmonton (Metro) includes Bon Accord, Edmonton, Fort Saskatchewan, Gibbons, Legal, Morinville, St. Albert, Strathcona County No. 20 and Sturgeon M.D. 90

Source: Statistics Canada, Building Permits, Cat. No.64-203

TABLE 2.27

VALUE OF BUILDING PERMITS BY TYPE SELECTED CITIES - ALBERTA - 1971 AND 1978-1985 (THOUSANDS OF DOLLARS)

	1971	1978	1979	1980	1981	1982	1983	1984	1985
Alberta									
Residential	322,286	1,650,409	1,805,956	1,743,694	2,373,167	1,059,328	809,209	501,720	669,119
Industrial	32,852	157,886	149,717	484,056	209,674	124,814	82,258	98,281	52,352
Commercial	111,433	954,378	1,107,922	1,348,864	2,069,893	1,005,323	470,640	409,826	466,689
Institutional and Government	78,513	271,151	290,971	438,423	478,206	751,538	508,852	376,462	609,919
Total	**545,084**	**3,033,824**	**3,354,566**	**4,015,037**	**5,130,940**	**2,911,003**	**1,870,959**	**1,386,289**	**1,798,079**
Edmonton (Metro)*									
Residential	142,742	600,899	522,720	462,289	627,545	387,406	288,194	156,189	200,639
Industrial	18,833	51,354	32,761	433,841	46,186	50,863	17,588	12,918	11,493
Commercial	41,058	204,542	339,587	389,815	578,996	282,761	190,951	165,318	211,471
Institutional and Government	21,364	81,371	90,818	155,960	121,405	194,794	191,855	44,335	139,581
Total	**223,997**	**938,166**	**985,888**	**1,441,905**	**1,374,132**	**915,824**	**688,588**	**378,760**	**563,184**
Edmonton (Proper)									
Residential	106,865	470,254	403,236	360,274	527,438	339,789	217,707	119,310	150,811
Industrial	5,643	20,085	12,252	18,682	18,987	32,369	10,408	6,528	4,771
Commercial	34,955	165,893	266,035	330,804	496,341	243,328	172,428	156,906	197,427
Institutional and Government	18,565	66,990	80,200	133,297	94,789	162,756	181,741	36,694	123,030
Total	**166,028**	**723,222**	**761,723**	**843,057**	**1,137,555**	**778,242**	**582,284**	**319,438**	**476,039**
Calgary									
Residential	101,739	458,296	612,102	655,135	1,075,033	304,882	192,013	125,903	192,669
Industrial	8,099	29,729	41,566	59,578	39,779	19,290	29,586	22,638	3,721
Commercial	48,361	493,685	418,547	607,407	1,178,401	585,371	153,295	141,745	132,780
Institutional and Government	35,136	71,033	30,822	72,254	152,266	141,916	35,728	108,129	145,109
Total	**193,335**	**1,052,743**	**1,103,037**	**1,394,374**	**2,445,479**	**1,051,459**	**410,622**	**398,415**	**474,279**

TABLE 2.27 continued

	1971	1978	1979	1980	1981	1982	1983	1984	1985
Lethbridge									
Residential	10,586	39,872	21,404	23,186	51,561	32,182	35,025	17,728	12,954
Industrial	722	4,494	5,545	4,228	6,765	5,488	1,361	4,884	960
Commercial	3,300	8,707	18,591	19,390	20,474	10,629	4,051	7,405	8,329
Institutional and Government	3,408	3,078	1,737	10,686	10,716	18,115	14,299	12,973	81,134
Total	**18,016**	**56,151**	**47,277**	**57,490**	**89,516**	**66,414**	**54,736**	**42,990**	**103,377**
Medicine Hat									
Residential	2,499	27,572	29,672	35,153	34,615	11,819	13,985	8,079	9,063
Industrial	169	1,960	2,194	5,852	1,185	361	109	269	7,528
Commercial	677	14,217	20,587	12,984	9,373	7,071	4,246	3,940	9,776
Institional and Government	571	1,207	4,526	3,901	12,302	28,026	19,676	17,543	39,016
Total	**3,916**	**44,956**	**56,979**	**57,890**	**57,475**	**47,277**	**38,016**	**29,830**	**65,383**
Red Deer									
Residential	4,299	52,215	45,902	52,699	75,883	18,999	23,941	10,311	14,231
Industrial	799	3,834	2,745	2,252	2,389	1,186	1,261	4,163	769
Commercial	456	20,954	26,306	44,988	25,679	11,267	6,116	6,253	6,487
Institutional and Government	3,710	27,449	24,088	17,024	16,643	19,491	16,537	6,357	16,821
Total	**9,264**	**104,452**	**99,041**	**116,963**	**120,594**	**50,943**	**47,855**	**27,084**	**38,308**

* Edmonton (Metro) includes Bon Accord, Edmonton, Fort Saskatchewan, Gibbons, Legal, Morinville, St. Albert, Strathcona County No. 20, Sturgeon M.D. 90

Source: Statistics Canada - Building Permits - Cat. No. 64-203

TABLE 2.28

VALUE OF CONSTRUCTION WORK PERFORMED, BY DETAILED TYPE OF CONSTRUCTION - ALBERTA - 1971, 1981 and 1984-1986. (MILLIONS OF DOLLARS)

	1971	1981	1984	1985	1986
Building Construction	**865**	**6,378**	**3,330**	**3,436**	**3,877**
Residential	492	2,830	1,160	1,193	1,453
Non-Residential	373	3,548	2,140	2,243	2,424
Industrial	51	419	193	147	154
Factories, Plants, Workshops	45	395	138	114	120
Other	6	24	55	33	34
Commercial	123	2,130	1,001	1,083	1,211
Warehouses, Storehouses, etc.	10	187	79	59	58
Office Buildings	41	1,199	496	405	684
Retail and Wholesale	44	464	172	338	167
Other	28	280	254	281	302
Institutional	137	605	568	608	649
Schools and Other Educational Buildings	107	251	177	202	267
Hospitals, Sanitoria, Clinics, etc.	17	238	284	306	239
Other	13	116	79	77	116

TABLE 2.28 continued

	1971	1981	1984	1985	1986
Other Building	62	395	378	406	410
Farm Buildings (excluding dwellings)	43	215	225	212	206
Other	18	180	153	194	204
Engineering Construction	**981**	**8,112**	**6,231**	**7,274**	**7,947**
Marine Construction	1	3	8	9	11
Roads, Highways and Aerodromes	143	859	712	797	797
Waterworks and Sewage Systems	46	434	366	335	354
Water Mains, Hydrants and Services	17	137	94	86	90
Sewage Systems and Connections	12	108	135	104	103
Other	17	189	137	145	161
Dams and Irrigation	12	158	124	151	172
Electric Power Construction	82	454	343	380	424
Generating Plants, Including Water Control	45	226	119	163	78
Transmission, Distribution and Trolley Lines	36	219	215	212	335
Other	1	9	9	5	11
Railway, Telephone and Telegraph	61	363	321	321	347
Railway Tracks and Road Beds	25	-	216	204	213
*Other	36	143	105	117	134
Gas and Oil Facilities	563	5,291	4,001	4,753	5,184
Gas Mains and Services	10	-	53	42	41
Oil and Gas Pipe Lines	49	115	264	274	251
Oil and Gas Wells	278	3,862	3,176	4,033	4,506
Natural Gas Processing Plants	198	360	338	332	277
*Other	28	954	170	72	109
Other Engineering	73	551	357	527	659
Bridges, Trestles, Culverts, Viaducts	22	81	60	65	71
Other	51	470	297	462	588
Total Construction	**1,846**	**10,242**	**9,531**	**10,710**	**11,824**
Salaries and Wages $	627	4,356	2,810	3,054	3,352
Cost of Materials Used $	771	5,882	4,006	4,541	5,028
Number of Employees ('000)	82	152	98	104	111

f - Forecast
Source: Statistics Canada, Construction in Canada, Cat. No. 64-201

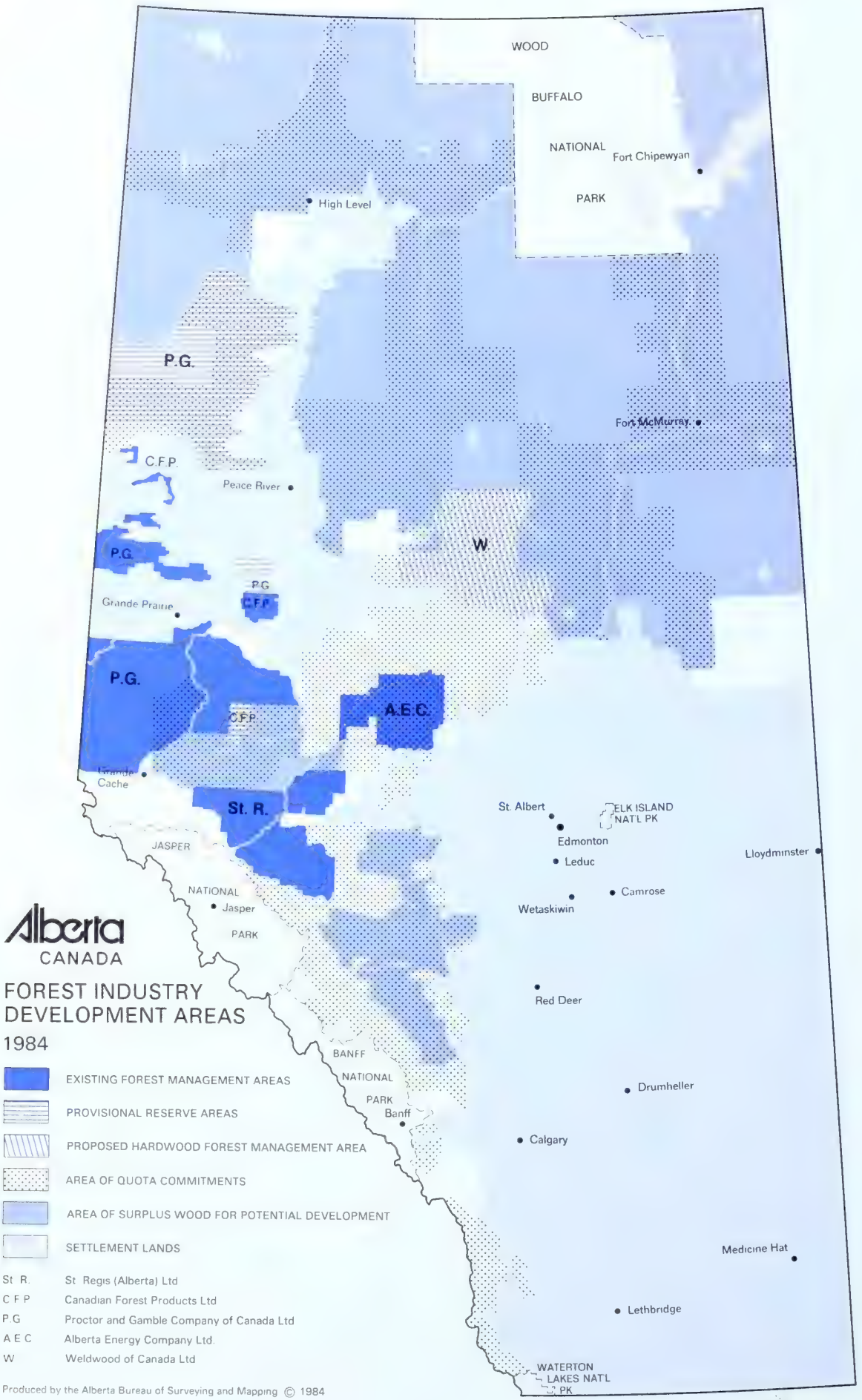

WOOD
BUFFALO
NATIONAL
PARK
Fort Chipewyan
High Level
P.G.
Fort McMurray
C.F.P.
Peace River
P.G.
W.
P.G.
C.F.P.
Grande Prairie
P.G.
C.F.P.
A.E.C.
Grande Cache
St. R.
St. Albert
ELK ISLAND NAT'L PK
Edmonton
Leduc
Lloydminster
JASPER
NATIONAL
PARK
Jasper
Camrose
Wetaskiwin
Red Deer
BANFF
NATIONAL
PARK
Banff
Drumheller
Calgary
Medicine Hat
Lethbridge
WATERTON LAKES NAT'L PK
Alberta
CANADA
FOREST INDUSTRY DEVELOPMENT AREAS
1984
EXISTING FOREST MANAGEMENT AREAS
PROVISIONAL RESERVE AREAS
PROPOSED HARDWOOD FOREST MANAGEMENT AREA
AREA OF QUOTA COMMITMENTS
AREA OF SURPLUS WOOD FOR POTENTIAL DEVELOPMENT
SETTLEMENT LANDS
St. R. St Regis (Alberta) Ltd
C.F.P. Canadian Forest Products Ltd
P.G. Proctor and Gamble Company of Canada Ltd
A.E.C. Alberta Energy Company Ltd.
W. Weldwood of Canada Ltd
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TABLE 2.29

Forest	Area of Managed* Forest Land (km^2)	Per Cent of Total Area of Managed Forest Land
Athabasca	60,164	18
Bow/Crow	11,202	3
Edson	19,422	6
Footner Lake	76,353	23
Grande Prairie	19,113	6
Lac La Biche	29,504	9
Peace River	33,776	10
Rocky/Clearwater	15,193	5
Slave Lake	50,500	15
Whitecourt	16,970	5
Total	**332,202**	**100**

Source: Alberta Forest Service
* excludes Metis Settlements, Indian Lands, parks, wilderness areas, privately owned land and townsites

TABLE 2.30

TIMBER VOLUMES BY SPECIES ALBERTA

Species	Diameter (cm)	Volume (000,000 m^3)	Per cent
Coniferous:			
Spruce, White	13 - 24	162.2	7
Spruce, White	25 & over	527.4	22
Pine, Jack & Lodgepole	13 - 24	317.4	13
Pine, Jack & Lodgepole	25 & over	373.7	15
Spruce, Black	13 & over	152.9	6
Fir, Balsam	13 & over	42.9	2
Deciduous:			
Poplar and Birch	13 & over	854.2	35
Total		**2,430.7**	**100**

Source: Alberta Forest Service

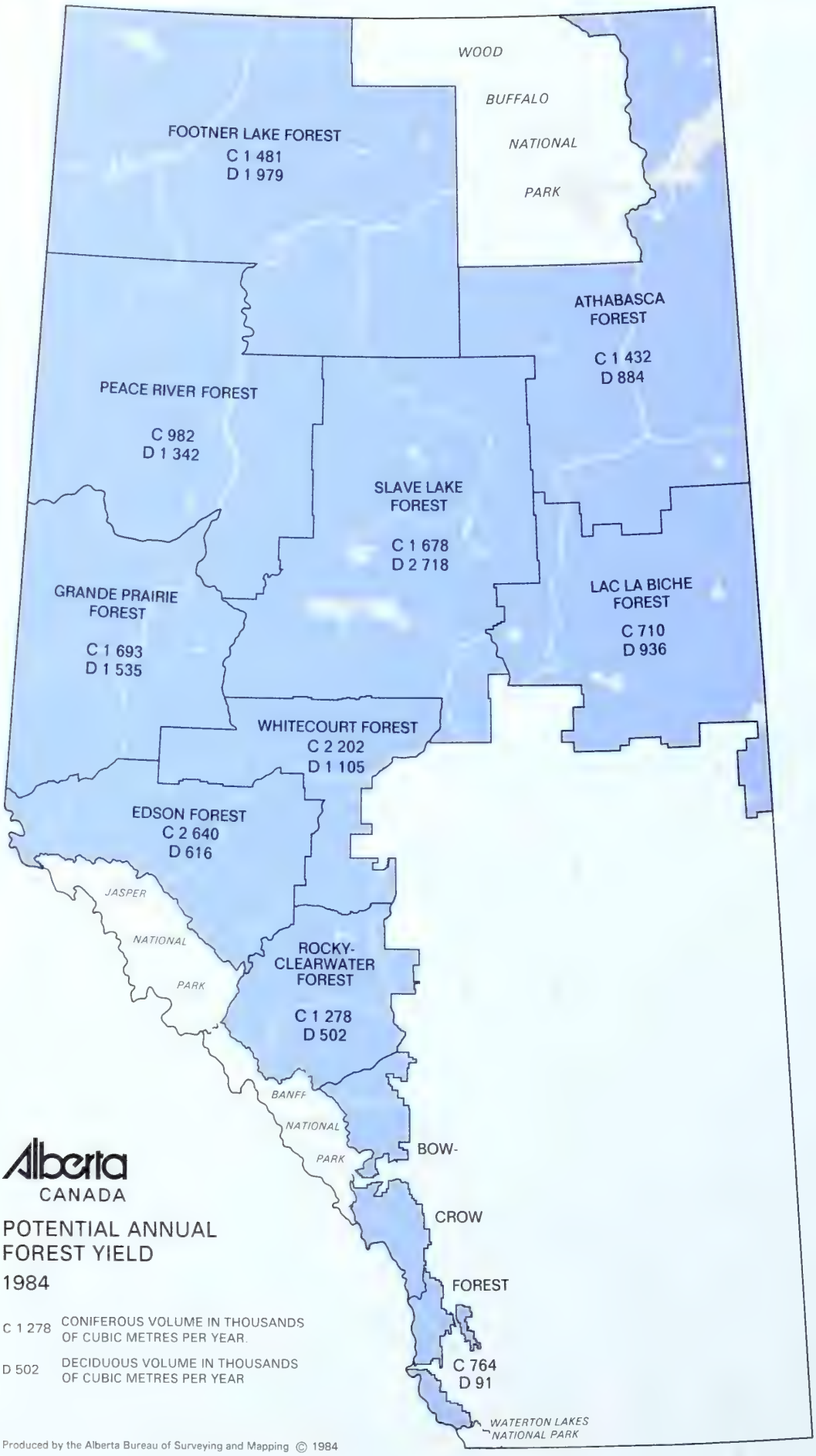

WOOD
BUFFALO
NATIONAL
PARK
FOOTNER LAKE FOREST
C 1 481
D 1 979
ATHABASCA
FOREST
C 1 432
D 884
PEACE RIVER FOREST
C 982
D 1 342
SLAVE LAKE
FOREST
C 1 678
D 2 718
LAC LA BICHE
FOREST
C 710
D 936
GRANDE PRAIRIE
FOREST
C 1 693
D 1 535
WHITECOURT FOREST
C 2 202
D 1 105
EDSON FOREST
C 2 640
D 616
JASPER
NATIONAL
PARK
ROCKY-
CLEARWATER
FOREST
C 1 278
D 502
BANFF
NATIONAL
PARK
BOW-
CROW
FOREST
C 764
D 91
WATERTON LAKES
NATIONAL PARK
Alberta
CANADA
POTENTIAL ANNUAL
FOREST YIELD
1984
C 1 278 CONIFEROUS VOLUME IN THOUSANDS OF CUBIC METRES PER YEAR.
D 502 DECIDUOUS VOLUME IN THOUSANDS OF CUBIC METRES PER YEAR
Produced by the Alberta Bureau of Surveying and Mapping © 1984

TABLE 2.31

FOREST PRODUCTION BY VOLUME AND VALUE ON CROWN LANDS - ALBERTA - 1985/86

Product	Units	Volume	Value ($000,000)
Lumber	Mfbm	1,210,000	237.6
Pulp	ADMT	483,500	303.2
OSB/Waferboard	MSF 3/8"	336,511	56.4
Plywood	MSF 3/8"	232,543	475.
Fuelwood	cords	43,582	5.3
Roundwood	m^3	38,733	5.3
Railway Ties	number	116,973	0.9
Christmas Trees	number	35,192	0.1
Transplants	number	11,953	0.0
Total			**656.3**

Source: Alberta Forest Service
Mfbm - thousand board feet
ADMT - air dried metric tonnes
MSF 3/8" - thousand square feet 3/8" basis
m^3 - cubic metres

TABLE 2.32

ANNUAL VOLUME OF TIMBER PRODUCTION ON CROWN LANDS, BY TYPE OF PRODUCT - ALBERTA FISCAL YEARS 1976-86 (THOUSANDS OF CUBIC METRES)

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Lumber Coniferous			2,937	3,911	3,783	4,064	4,123	5,822	5,242	5,317
Lumber Deciduous	3	12	25	18	106	132	116	352	371	496
Roundwood	181	217	82	171	148	150	161	188	74	39
Pulpwood		1,651	1,547	1,587	1,326	1,115	1,012	816	805	1,000
Fuelwood		46	60	64	66	86	131	124	96	98
Railway Ties		28	22	14	24	18	18	13	13	7
Woodchips		539	880	798	790	860	853	1,304	1,443	1,458
Total		**5,377**	**5,552**	**6,563**	**6,243**	**6,424**	**6,414**	**8,619**	**6,601**	**6,957**

Source: Alberta Forest Service

TABLE 2.33

AREA - CROWN AND PRIVATE LAND - ALBERTA - 1985

	km^2	Per Cent
Crown Land	**477,975**	**72**
Federal (National Parks, Department of National Defence)	63,483	10
Provincial (Parks, Wilderness Areas non-settled public lands)	414,492	62
Private Lands	**183,210**	**28**
Provincial Total	**661,185**	**100**

Source: Alberta Forest Service

TABLE 2.34

REFORESTATION ACTIVITY, ALBERTA FOREST SERVICE (AFS) AND ALBERTA FOREST INDUSTRY (AFI) FIRMS - ALBERTA - 1971/72 - 1985/86

Year		Area Scarified (hectares)	Area Seeded (hectares)	Area Thinned (hectares)	Seed Extracted (kg)	Seedlings Planted Bare Root * ('000)	Seedlings Planted Container ('000)
1971-72	AFS	7,243	5,385	1,374	1,107	1,655	513
	AFI	5,452	217	-	92	-	644
1972-73	AFS	6,979	4,701	100	311	333	1,127
	AFI	5,501	1,745	-	288	40	929
1973-74	AFS	6,594	1,332	108	449	1,228	1,335
	AFI	6,793	1,939	-	386	64	958
1974-75	AFS	6,296	2,047	72	2,381	1,141	1,224
	AFI	6,334	2,313	-	1,603	140	3,124
1975-76	AFS	6,697	1,885	104	3,441	944	3,515
	AFI	10,840	2,862	40	4,461	1,329	1,733
1976-77	AFS	4,757	2,898	546	9,089	828	2,295
	AFI	9,849	3,427	37	6,984	104	3,285
1977-78	AFS	6,684	4,782	111	2,327	224	2,379
	AFI	10,292	5,328	20	1,143	-	4,254
1978-79	AFS	10,140	4,655	26	26,787	94	2,081
	AFI	9,724	1,691	365	1,248	45	6,165
1979-80	AFS	6,324	3,325	16	14,014	-	4,899
	AFI	8,819	2,218	256	9,123	-	5,430
1980-81	AFS	6,102	4,687	-	4,365	769	3,754
	AFI	6,484	1,948	216	1,696	30	6,774
1981-82	AFS	5,964	3,127	251	1,159	5,914	2,247
	AFI	7,604	1,574	383	460	142	6,484
1982-83	AFS	8,131	3,212	543	8,638	3,491	3,712
	AFI	8,480	2,158	152	504	2,729	4,202
1983-84	AFS	8,532	3,331	720	6,493	4,202	6,358
	AFI	11,489	3,357	27	9,405	1,754	4,354
1984-85	AFS	6,911	5,303	68	3,115	2,122	6,709
	AFI	11,171	3,133	442	N/A	1,095	6,350
1985-86	AFS	7,393	2,297	803	2,686	2,193	3,325
	AFI	12,009	3,996	202	N/A	1,540	4,908

Source: Alberta Forests Service

* Includes wildlings

Fisheries

TABLE 2.35

FISHERIES PRODUCTION - ALBERTA - 1961-1985

	Tonnes	($ 000)
1961	7,584	2,179
1962	4,202	1,416
1963	4,100	1,141
1964	4,037	1,174
1965	5,578	1,243
1966	4,034	1,188
1967	4,766	1,397
1968	4,735	1,560
1969	5,437	1,466
1970	4,902	1,728
1971	3,128	1,588
1972	2,425	1,411
1973	2,204	1,476
1974	2,092	1,434
1975	2,376	1,754
1976	1,946	1,696
1977	1,965	2,165
1978	2,119	2,170
1979	2,023	2,374
1980	2,014	2,818
1981	2,486	3,326
1982	2,245	3,213
1983	2,380	1,791
1984	1,916	1,658
1985	3,256	2,799

Source Alberta Fish & Wildlife Division

Trapping

TABLE 2.36

FUR PRODUCTION AND VALUE OF FUR PELTS - ALBERTA 1962-1986

	Number	($ 000)
1962	1,526,086	1,396
1963	1,164,731	1,826
1964	712,900	1,725
1965	1,204,987	1,689
1966	846,470	1,667
1967	660,941	1,043
1968	885,430	1,749
1969	681,705	1,938
1970	476,319	1,572
1971	526,017	1,464
1972	567,033	2,765
1973	620,357	5,746
1974	413,355	4,310
1975	696,911	3,493
1976	685,270	4,970
1977	1,086,424	7,091
1978	577,267	6,317
1979	543,203	11,795
1980	1,830,551	15,572
1981	797,833	12,095
1982	423,533	9,774
1983	369,214	7,597
1984	565,024	5,696
1985	312,913	6,881
* 1986	353,896	6,631

* 1985/86 season July 1/85 to June 30/86

Tourism

TABLE 2.37

VISITORS TO ALBERTA NATIONAL PARKS - 1976 AND 1980-1985 ('000s)

	1976	1980	1981	1982	1983	1984	1985
Banff	3,038	3,649	3,913	3,489	3,195	3,210	3,258
Jasper	1,622	1,929	1,972	1,846	1,871	1,859	1,804
Waterton	570*	667	642	679	670	641	605
Elk Island	328	420	496	434	394	371	336
Wood Buffalo	-	-	2	2	1	3	2
Total	**5,258**	**6,665**	**7,025**	**6,451**	**6,131**	**6,084**	**6,006**

Source Alberta Tourism


WOOD
BUFFALO
NATIONAL
PARK
Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande
Prairie
Grande
Cache
JASPER
NATIONAL
PARK
Jasper
BANFF
NATIONAL
PARK
Banff
St Albert
ELK ISLAND
NAT'L PK
Edmonton
Leduc
Wetaskiwin
Camrose
Lloydminster
Red Deer
Drumheller
Calgary
Medicine
Hat
Lethbridge
WATERTON
LAKES NAT'L
PK
Alberta
CANADA
1984
NATIONAL PARK
PROVINCIAL PARK
FORESTRY AREA
Produced by the Alberta Bureau of Surveying and Mapping © 1984

TABLE 2.38

PERSONS AND VEHICLES ENTERING THROUGH CANADA CUSTOMS PORTS, ALBERTA 1975 AND 1980-1985

	1975	1980	1981	1982	1983	1984	1985
U.S Vehicles Entering Through Alberta/USA Border Points (1)	166,445	102,933	111,126	110,492	105,736	98,497	109,871
Persons Entering Through Canada Customs Ports in Alberta: (1)							
United States Visitors	559,337	451,881	485,671	464,222	455,175	442,183	457,691
Overseas Visitors	47,030	95,321	104,815	97,929	88,555	83,473	73,985
Canadian Residents Returning: (1)							
From the U.S.	612,364	825,360	817,494	798,670	849,459	747,371	733,943
From Overseas	66,771	80,335	79,749	84,168	105,688	125,503	118,497

Sources: Statistics Canada, Travel Between Canada and other Countries Cat. No. 66-001

TABLE 2.39

ESTIMATED TOURISM RECEIPTS FROM RESIDENT AND NON-RESIDENT TRAVEL, ALBERTA, 1971-1985 (MILLIONS OF DOLLARS)

	Alberta Travellers	Other Canadian Travellers	U.S.A. Travellers	Overseas Travellers	Total Receipts	Percentage Growth Over Previous Year
1971	224	85	60	5	374	—
1972	248	94	66	7	415	10.7
1973	292	112	75	10	489	17.8
1974	344	134	68	17	563	15.3
1975	402	153	85	25	665	18.1
1976	465	177	98	27	767	15.3
1977	519	244	113	29	905	18.0
1978	578	336	117	37	1,068	18.0
1979	645	463	119	50	1,277	19.6
1980	719	610	141	59	1,529	19.7
1981	801	641	171	70	1,683	10.1
1982	896	673	175	90	1,834	9.0
1983	914	685	210	83	1,892	3.2
1984	959	720	229	89	1,997	5.5
1985	1,012	760	233	85	2,089	4.6

Source Alberta Tourism

TABLE 3.1

RESEARCH AND DEVELOPMENT EXPENDITURES IN ALBERTA AND CANADA (MILLIONS OF DOLLARS)

	Alberta				Canada
	1981-82	1982-83	1983-84	1984-85	1984-85
Expenditures on:					
Natural Sciences	456	488	471	500	5,460
Social Sciences	46	51	55	61	481
Total	**501**	**539**	**526**	**561**	**5,941**

TABLE 4.1

REMAINING ESTABLISHED RESERVES OF FOSSIL FUELS - ALBERTA - (ESTIMATED AS AT YEAR END 1985)

Fuel	Type	Unit of Measure	Quantity
Coal	Subbituminous	Tonne	$17{,}900 \times 10^6$
	Bituminous		
	- Low - Medium Volatile	Tonne	$1{,}600 \times 10^6$
	- High Volatile	Tonne	$2{,}300 \times 10^6$
Synthetic Crude Oil (developed and undeveloped)		m^3	$3{,}870 \times 10^6$
Bitumen (developed)		m^3	282×10^6
Conventional Crude Oil		m^3	648×10^6
Ethane		m^3	306×10^6
Natural Gas		m^3	$1{,}768 \times 10^6$
Liquified Petroleum Gases*		m^3	196×10^6
Pentanes Plus		m^3	120×10^6

*Includes propane and butane

Source: ERCB Selected Statistics

TABLE 4.2

ESTIMATED REMAINING ULTIMATE POTENTIAL RESERVES OF FOSSIL FUELS - ALBERTA - (ESTIMATED AS AT YEAR END 1985)

Fuel	Type	Unit of Measure	Quantity
Coal	Subbituminous	Tonne	590×10^9
	Bituminous		
	- Low - Medium Volatile	Tonne	4.5×10^9
	- High Volatile	Tonne	200×10^9
Synthetic Crude Oil		m^3	$48{,}881 \times 10^6$
Conventional Crude Oil*		m^3	$1{,}176 \times 10^6$
Ethane		m^3	500×10^6
Natural Gas		m^3	$2{,}913 \times 10^9$
Liquified Petroleum Gases**		m^3	311×10^6
Pentanes Plus		m^3	187×10^6

* Includes tertiary recovery
** Includes propane and butane

Source: ERCB Alberta Oil Supply 85-A ERCB Report ST 86-18
ERCB Reserves of Coal Report ST 86-31

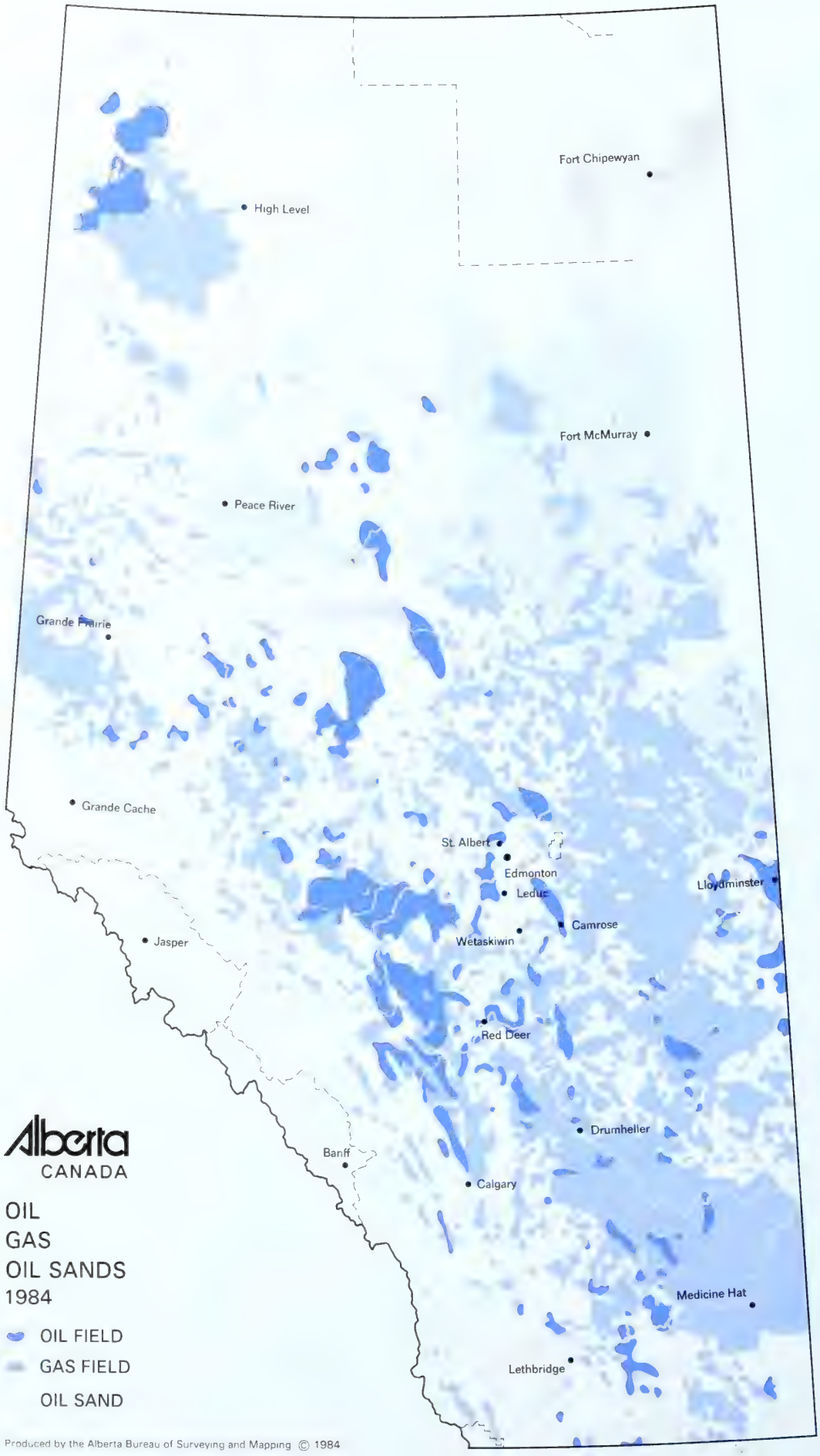

Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St. Albert
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Lloydminster
Leduc
Camrose
Wetaskiwin
Jasper
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
OIL
GAS
OIL SANDS
1984
OIL FIELD
GAS FIELD
OIL SAND
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TABLE 4.3

PRINCIPAL STATISTICS - CRUDE OIL AND NATURAL GAS INDUSTRY - 1977-1984 (EXCLUSIVE OF SYNTHETIC CRUDE OIL OPERATIONS)

Year	Establish-ments	Total Activity		Cost of Electricity	Cost of Materials, Supplies & Fuel	Value Added	Value of Marketable Production
		Employees	Salaries and Wages				
	No.	No.	$000	$000	$000	$000	$000
1977	247	18,563	358,534	49,468	138,348	7,685,471	7,816,415
1978	231	20,176	418,401	55,640	139,143	8,923,255	9,035,150
1979	240	22,418	498,251	69,189	202,793	11,279,799	11,351,822
1980	311	24,780	613,167	82,043	244,790	13,497,566	13,589,587
1981	352	26,110	715,972	100,255	363,092	14,387,849	14,809,168
1982	307	28,730	939,546	132,010	458,380	16,848,692	17,393,541
1983	354	30,351	1,114,039	169,378	519,581	19,349,930	20,017,288
1984	352	33,718	1,292,694	198,764	623,702	21,653,546	22,453,950

TABLE 4.4

OIL AND GAS WELLS DEPTH DRILLED - WELLS COMPLETED AND YEAR END STATUS - ALBERTA - 1971, 1976 AND 1980-85

	1971	1976	1980	1981	1982	1983	1984	1985
Depth Drilled (km)								
Development	1,132	2,908	4,716	3,600	3,607	3,831	4,563	5,597
Exploration	1,314	1,958	3,703	3,170	2,299	1,814	2,394	2,860
Total Conventional	2,446	4,866	8,419	6,770	5,906	5,645	6,957	8,457
Oil Sands and Heavy Oil	N A	70	192	249	151	159	482	830
Grand Total	**2,446**	**4,936**	**8,611**	**7,019**	**6,057**	**5,804**	**7,439**	**9,287**
Well Completions (number)								
Conventional								
Oil	362	552	1,606	1,425	1,563	2,242	2,343	2,789
Gas	691	3,101	3,895	3,056	2,411	1,091	1,281	1,932
Total Conventional	2,025	5,017	7,048	5,841	5,126	4,360	5,202	6,576
Oil Sand and Heavy Oil								
Experimental/Evaluation	N A	197	567	1,088	452	341	482	853
Bitumen, Primary and								
Commercial	N A	N A	N A	N A	N A	N A	450	975
Total	N A	197	567	1,088	452	341	932	1,828
Grand Total	**2,025**	**5,214**	**7,615**	**6,929**	**5,578**	**4,701**	**6,134**	**8,403**
Well Status at Year End (number)								
Oil Wells								
Capable of Production	14,065	15,663	18,833	20,072	21,345	23,182	25,320	27,830
Operated	9,467	11,166	13,312	14,243	15,259	16,694	19,957	18,406
Gas Wells								
Capable of Production	3,426	9,010	19,546	22,611	25,400	27,125	29,037	30,255
Operated	2,830	7,753	16,661	18,797	20,611	21,881	24,424	22,839
Capped	1,801	4,864	10,094	11,593	10,991	10,835	10,793	10,957

Source: Energy Resources Conservation Board, Alberta Oil and Gas Industry Annual and Monthly Statistics

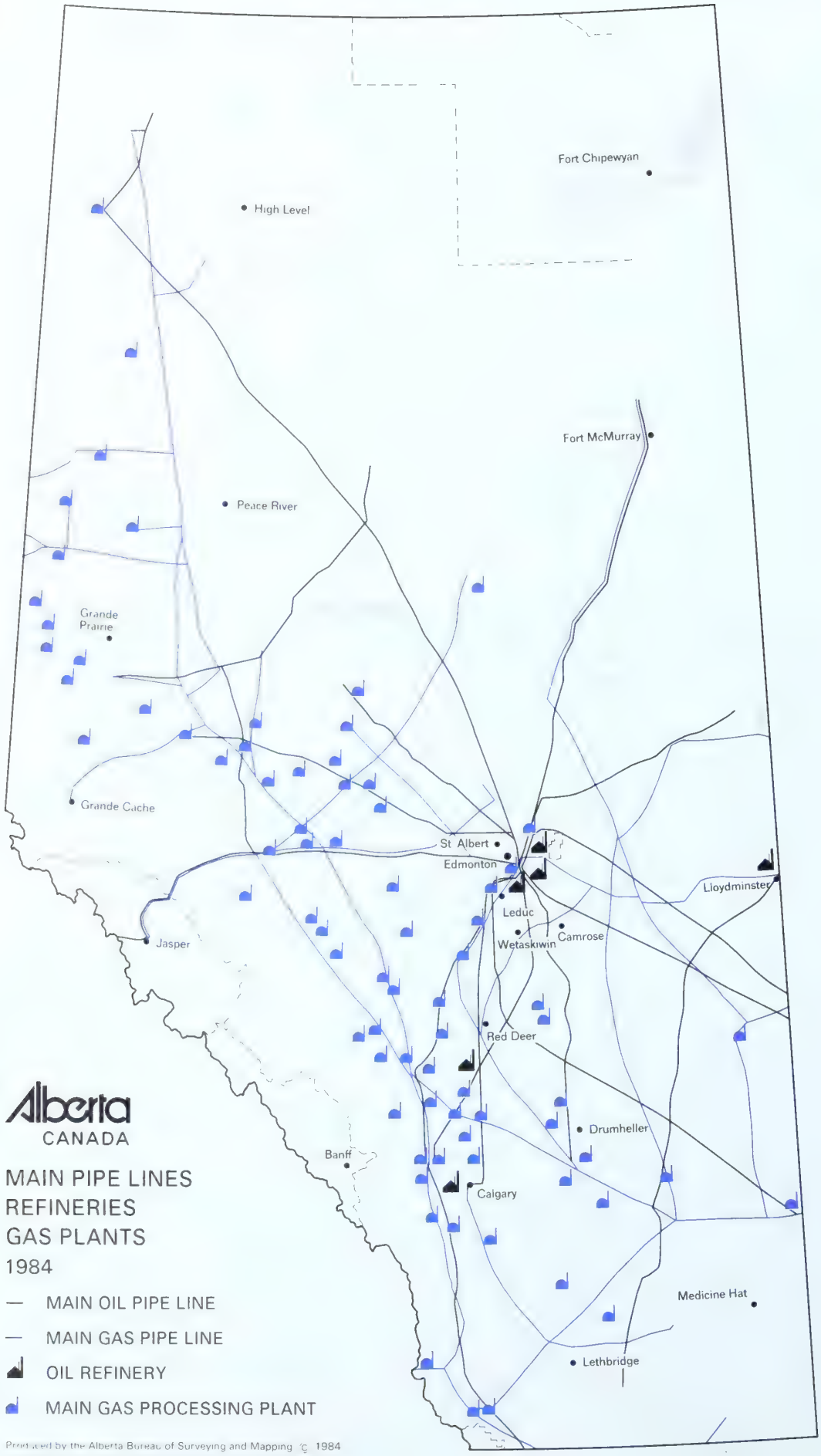

Fort Chipewyan
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Lethbridge
Alberta
CANADA
MAIN PIPE LINES
REFINERIES
GAS PLANTS
1984
MAIN OIL PIPE LINE
MAIN GAS PIPE LINE
OIL REFINERY
MAIN GAS PROCESSING PLANT
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TABLE 4.5

ANNUAL PRODUCTION OF LIQUID HYDROCARBONS AND NATURAL GAS, BY TYPES - ALBERTA - 1967-1985 (CUBIC METRES)

	Crude Oil* '000	Synthetic Crude Oil '000	Condensate '000	Pentanes Plus '000	Propane* '000	Butanes* '000	Natural Gas* '000 000
1967	36,694	72	121	4,540	2,033	1,319	35,368
1968	39,991	910	127	4,934	2,303	1,507	40,437
1969	44,402	1,603	107	5,786	2,637	1,655	47,275
1970	51,769	1,920	112	6,657	3,200	2,083	54,441
1971	56,780	2,469	121	7,071	3,672	2,400	59,592
1972	67,508	2,963	145	9,270	4,624	3,055	67,967
1973	83,013	2,906	159	9,427	5,166	3,361	73,591
1974	79,108	2,654	119	9,012	5,083	3,372	73,354
1975	67,512	2,474	114	8,443	5,359	3,502	74,468
1976	60,908	2,779	115	7,421	5,240	3,435	75,237
1977	60,514	2,611	122	7,344	5,342	3,500	78,545
1978	60,015	3,239	122	6,561	5,051	3,211	77,494
1979	68,516	5,329	134	6,472	5,542	3,471	82,314
1980	63,201	7,410	111	5,891	5,294	3,249	77,358
1981	56,979	7,199	95	5,652	5,192	3,126	76,376
1982	54,384	8,239	104	5,530	5,235	3,117	78,522
1983	55,317	10,094	[illegible]	5,161	4,945	3,032	75,006
1984	59,886	9,725	134	5,333	5,476	3,103	81,112
1985	59,995	9,746	157	5,797	5,357	3,064	86,716

* net production

Source: Canadian Petroleum Association, Statistical Handbook; Statistics Canada - Crude Petroleum and Natural Gas Production Cat. No. 26-006

TABLE 4.6

CANADIAN NATURAL GAS PRODUCTION* - BY PROVINCE AND TERRITORY SELECTED YEARS - 1947-1985 (MILLIONS OF CUBIC METRES)

	N.W.T.	British Columbia	Alberta	Saskat-chewan	Western Canada	Eastern Canada	Canada
1947-1956	38	14	28,089	1,168	29,309	2,679	31,987
1957-1966	145	31,249	181,345	15,628	228,367	4,346	232,713
1967	18	6,732	35,368	1,750	43,868	404	44,272
1968	20	7,681	40,437	1,928	50,066	346	50,412
1969	19	8,908	47,275	1,974	58,177	322	58,499
1970	25	9,561	54,441	2,271	66,299	475	66,774
1971	60	9,960	59,592	2,461	72,073	466	72,539
1972	451	12,413	67,967	2,204	83,036	358	83,395

TABLE 4.6 continued

	N.W.T.	British Columbia	Alberta	Saskat-chewan	Western Canada	Eastern Canada	Canada
1973	1,094	13,460	73,591	2,161	90,305	278	90,583
1974	966	11,625	73,354	2,019	87,964	221	88,185
1975	934	11,277	74,468	1,960	88,640	314	88,954
1976	1,026	10,829	75,237	1,902	88,995	143	89,139
1977	856	11,061	78,545	1,669	92,131	244	92,375
1978	619	9,898	77,494	1,554	89,655	355	90,011
1979	626	11,384	82,314	1,559	95,883	390	96,274
1980	402	9,056	77,358	1,591	88,407	448	88,858
1981	397	8,418	76,376	1,498	86,690	426	87,116
1982	261	7,879	78,522	1,620	88,282	442	88,724
1983	227	7,853	75,006	1,669	84,754	468	85,222
1984	235	8,276	81,112	2,126	91,749	487	92,236
1985	229	7,518	86,716	1,798	96,261	522	96,783
Total	**8,649**	**215,145**	**1,524,139**	**52,671**	**1,800,911**	**14,134**	**1,815,051**

*Raw natural gas production less raw and processed injected gas
Source: Canadian Petroleum Association, Statistical Handbook, Statistics Canada: The Crude Petroleum and Natural Gas Industry, Cat. No. 26-2B

TABLE 4.7

CANADIAN CRUDE OIL PRODUCTION* - BY PROVINCE AND TERRITORY - SELECTED YEARS - 1947-1985 (THOUSANDS OF CUBIC METRES)

	N.W.T.	B.C.	Alberta**	Sask.	Man.	Western Canada	Eastern Canada	Canada
1947-56	484	24	92,675	7,430	2,044	102,657	511	104,181
1957-66	862	1,062	248,292	100,929	8,336	359,481	1,726	370,119
1967	113	3,125	36,694	14,712	7,713	62,357	199	55,731
1968	120	3,522	39,991	14,609	888	59,130	184	59,412
1969	127	4,024	44,402	13,896	986	63,435	186	63,622
1970	135	4,028	51,769	14,227	940	71,099	168	71,265
1971	149	3,997	56,780	14,063	891	75,880	154	76,034
1972	141	3,787	67,508	13,768	835	86,040	141	86,181
1973	153	3,367	83,013	13,626	808	100,966	130	101,097
1974	159	2,995	79,108	11,726	755	94,742	118	94,860
1975	160	2,269	67,512	9,379	702	80,021	113	80,134
1976	142	2,366	60,908	8,886	633	72,936	101	73,037
1977	138	2,199	60,514	9,763	631	73,245	99	73,344
1978	146	2,004	60,015	9,625	598	72,388	96	72,483
1979	150	2,140	68,516	9,372	583	80,761	93	80,853

TABLE 4.7 continued

	N.W.T.	B.C.	Alberta**	Sask.	Man.	Western Canada	Eastern Canada	Canada
1980	161	2,002	63,201	9,331	564	75,258	94	75,352
1981	173	2,032	56,979	7,393	543	67,120	90	67,210
1982	173	2,077	54,384	8,104	582	65,320	86	65,406
1983	169	2,079	55,317	9,543	737	67,846	84	67,929
1984	175	2,094	59,886	10,812	793	73,761	91	73,851
1985	1,148	1,941	59,995	11,578	821	75,483	112	75,595

*Excludes experimental and synthetic crude oil
** Includes some condensate prior to 1951

Source: Canadian Petroleum Association, Statistical Handbook, Statistics Canada: The Crude Petroleum and Natural Gas Industry, Cat. No. 26-2B

TABLE 4.8

PRODUCTION OF CRUDE OIL BY FIELD - ALBERTA - SELECTED YEARS - 1914-1985 (THOUSAND OF CUBIC METRES)

FIELD	1914-79	1980	1981	1982	1983	1984	1985
Acheson	13,445	775	737	697	676	722	730
Bantry	5,127	239	248	200	247	273	305
Bonnie Glen	52,542	4,257	4,167	3,747	3,840	3,870	3,191
Carson Creek North	14,318	1,213	1,074	1,190	1,180	958	728
Clive	4,963	411	410	341	337	347	351
Fenn Big Valley	31,912	2,587	2,740	2,424	2,465	2,734	2,007
Garrington	2,761	116	143	189	230	304	280
Gilbey	5,812	229	213	195	192	211	215
Golden Spike	27,075	418	324	233	171	139	100
Goose River	4,951	283	261	300	240	275	273
Harmattan East	8,535	393	298	291	339	490	392
Harmattan Elkton	7,082	323	316	294	313	374	344
Innisfail	8,870	560	449	303	275	296	336
Joarcam	13,635	259	218	218	299	337	341
Joffre	11,441	210	185	173	172	182	202
Judy Creek	49,474	2,901	2,082	1,595	1,256	1,130	955
Kaybob	12,176	669	545	501	569	447	406
Kaybob South	7,153	654	561	606	592	633	717
Leduc-Woodbend	56,557	569	530	457	433	357	331
Medicine River	6,359	491	490	473	516	614	596
Mitsue	28,662	2,423	2,226	2,126	1,729	1,591	1,515
Nipisi	26,129	1,901	1,947	1,816	1,874	2,380	2,141
Pembina	152,272	4,544	4,305	4,462	4,679	5,308	5,223
Rainbow	52,224	4,223	3,702	3,583	3,364	3,122	2,791

TABLE 4.8 continued

FIELD	1914-79	1980	1981	1982	1983	1984	1985
Rainbow South	6,606	554	408	382	358	395	383
Red Earth	3,557	267	237	244	252	250	282
Redwater	109,153	4,596	2,875	2,039	1,599	1,334	1,114
Simonette	4,804	168	144	158	132	137	117
Snipe Lake	6,772	270	241	224	204	197	206
Stettler	6,285	182	182	152	156	164	161
Sturgeon Lake South	15,496	823	718	766	725	742	720
Sundre	4,348	166	164	166	162	178	163
Swan Hills	82,332	4,018	3,276	3,182	2,976	2,734	2,616
Swan Hills South	40,189	3,218	2,303	1,838	1,489	1,341	1,272
Turner Valley	20,681	182	175	180	183	179	167
Virgina Hills	16,179	728	634	746	713	815	776
Virgo	4,688	191	164	190	173	190	192
Wainwright	6,673	394	393	379	420	476	571
Westerose	12,407	883	877	802	975	1,330	1,046
Willesden Green	12,854	786	709	637	609	621	608
Wizard Lake	34,822	2,688	2,586	2,367	2,318	2,118	1,763
Zama	8,743	375	319	368	391	454	406
Other Fields & Areas	129,946	12,039	12,396	13,148	15,491	19,172	20,135
Annual Production	-	**63,176**	**56,972**	**54,382**	**55,314**	**59,921**	**57,238**
Cumulative Production	**1,129,812**	**1,192,988**	**1,249,960**	**1,304,342**	**1,359,656***	**1,419,577**	**1,476,815***

* Includes Adjustments from Previous Years

Source: Energy Resources Conservation Board, Pub. 16A

TABLE 4.9

ESTIMATED REMAINING ESTABLISHED RESERVES OF CONVENTIONAL CRUDE OIL, BY PROVINCE 1978-1985 (MILLIONS OF CUBIC METRES)

	1978	1979	1980	1981	1982	1983	1984	1985
British Columbia	22.8	27.6	25.9	25.9	24.2	24.3	23.0	20.4
Alberta	794.5	760.6	719.6	696.0	649.4	657.8	641.0	648.0
Saskatchewan	117.2	117.7	117.8	117.0	109.7	114.3	115.5	122.9
Manitoba	6.3	5.7	5.2	5.0	8.2	12.5	9.9	10.5
N.W.T.	10.6	21.2	21.0	20.9	20.7	30.5	30.3	29.3
Eastern Canada	1.5	1.5	1.4	1.0	0.8	0.9	1.0	1.0
East Coast Offshore	-	-	-	175.0	175.0	175.0	103.0	83.0
Total	**952.9**	934.3	**890.9**	**1,040.8**	**988.0**	**1,015.3**	**923.7**	**915.1**

Source: Alberta - Energy Resources Conservation Board; other provinces - Canadian Petroleum Association.

TABLE 4.10

ESTIMATED REMAINING ESTABLISHED RESERVES OF MARKETABLE NATURAL GAS, BY PROVINCE 1978-1985 (MILLIONS OF CUBIC METRES)

	1978	1979	1980	1981	1982	1983	1984	1985
British Columbia	218 4	207.4	208.7	222.3	220.6	222.2	224.0	243.5
Alberta	1,730.9	1,783 1	1,812.1	1,864.8	1,924.6	1,898.7	1,798.4	1,768.3
Saskatchewan	35.3	35.4	33.7	32.6	28.3	27.6	27.0	25.8
N.W.T.	509 4	598 0	579.8	576.3	604.8	605.1	646.0	676.1
Eastern Canada	9.4	8.9	8.3	8.8	9.0	12.8	12.8	11.5
Total	**2,322.2**	**2,496.1**	**2,491.9**	**2,562.9**	**2,787.3**	**2,766.4**	**2,708.2**	**2,725.2**

Source: Alberta - Energy Resources Conservation Board; other provinces - Canadian Petroleum Association

TABLE 4.11

PETROLEUM INDUSTRY EXPENDITURES - ALBERTA AND CANADA - SELECTED YEARS - 1947-1985 (MILLIONS OF DOLLARS)

	1947-77	1978	1979	1980	1981	1982	1983	1984	1985*
Alberta									
Exploration	4,444 2	994 8	1,377.2	2,073.9	1,896.0	1,401.4	1,390.1	1,602.6	1,848.8
Development	2,863 9	477.4	679.2	1,063.3	1,083 2	942.5	906.3	996.5	1,296.1
Land	4,007.3	740 5	1,144.7	1,224.5	721.3	465.6	565.1	790.2	1,021.1
Production Facilities	2,698 4	485 9	654 4	1,036.3	1,024.1	971.9	715.4	958.5	1,583.8
Operating	6,664 6	1,287 6	1,683 9	2,104.9	1,834.5	2,185 3	2,431.7	2,872.4	3,280.9
Gas Plants	1,676.2	165.9	204.7	241 1	310 9	493 7	179.7	180.5	263.3
Royalties	9,062 3	3,054 9	3,623.3	4,248 3	4,496 7	5,098 1	5,467.2	5,958.1	6,005.4
Total	**31,417.0**	**7,207.0**	**9,367.4**	**11,992.2**	**11,366.7**	**11,558.6**	**11,655.7**	**13,359.1**	**15,036.1**
Canada									
Exploration	8,441 9	1,739.5	2,358.2	3,420 9	3,457 5	3,233.5	3,875.1	4,354.4	4,391.6
Development	3,517 6	477 4	898 0	1,308 8	1,248.0	1,194.1	1,171.6	1,348.9	1,751.9
Land	5,187 3	1,014 8	1,438 0	1,546 9	872.4	568.4	760.0	1,048.6	1,329.5
Production Facilities	3,314.1	605 4	797.7	1,363.0	1,217.7	1,235.2	1,033.0	1,256.8	1,997.1
Operating	7,916 6	1,627.7	1,956.3	2,490 9	2,208 1	2,593.3	2,938.0	3,485.6	4,008.3
Gas Plants	1,876 7	218 8	301 9	311 6	347 1	522 8	195 8	214 6	337.6
Royalties	10,583 0	3,388 2	4,026.7	4,708 2	4,911.3	5,645.3	6,179.0	6,731.3	6,855.3
Total	**41,316.5**	**9,071.8**	**11,776.8**	**15,150.2**	**14,262.2**	**14,992.2**	**16,152.5**	**18,439.4**	**20,333.7**

Source: Statistics Canada - The Crude Petroleum and Natural Gas Industry, Cat. No. 26-213, 1985 estimate from the Canadian Petroleum Association

*Estimate

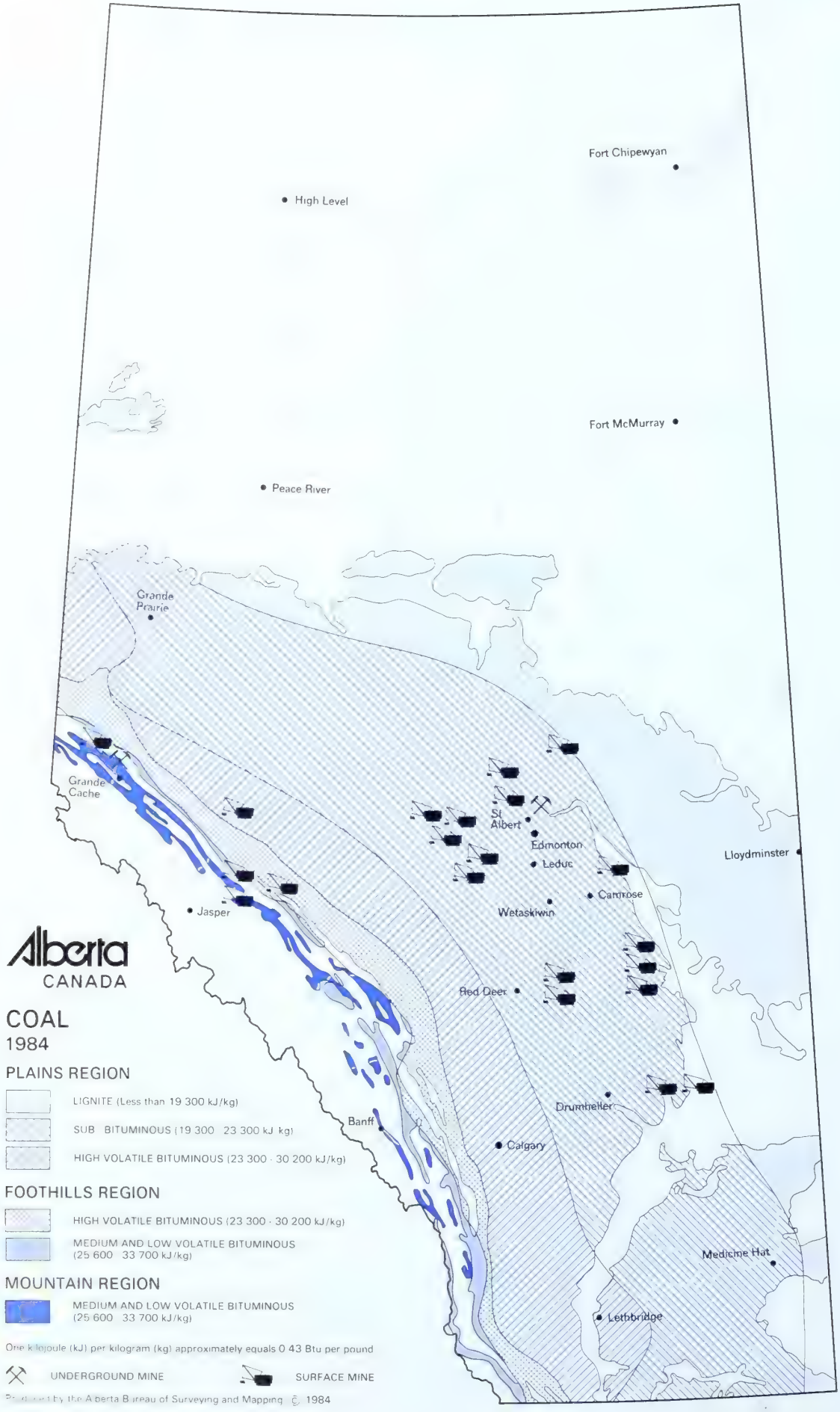

Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
Jasper
St Albert
Edmonton
Leduc
Lloydminster
Camrose
Wetaskiwin
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
COAL
1984
PLAINS REGION
LIGNITE (Less than 19 300 kJ/kg)
SUB BITUMINOUS (19 300 23 300 kJ kg)
HIGH VOLATILE BITUMINOUS (23 300 - 30 200 kJ/kg)
FOOTHILLS REGION
HIGH VOLATILE BITUMINOUS (23 300 - 30 200 kJ/kg)
MEDIUM AND LOW VOLATILE BITUMINOUS (25 600 33 700 kJ/kg)
MOUNTAIN REGION
MEDIUM AND LOW VOLATILE BITUMINOUS (25 600 33 700 kJ/kg)
One kilojoule (kJ) per kilogram (kg) approximately equals 0 43 Btu per pound
UNDERGROUND MINE
SURFACE MINE
Produced by the Alberta Bureau of Surveying and Mapping © 1984

TABLE 4.12

ALBERTA GOVERNMENT REVENUE FROM MINERAL RESOURCES - FISCAL YEARS 1976/77 - 1984/85 (THOUSANDS OF DOLLARS)

	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85
Coal									
Fees, Rentals & Bonus	3,471	3,840	4,165	1,495	4,249	4,408	4,387	3,567	3,451
Royalty	6,794	15,198	19,646	7,543	8,263	11,920	13,950	10,786	8,900
Petroleum & Natural Gas									
Fees, Rental & Bonus	265,594	800,985	782,543	1,121,994	843,073	647,921	421,851	566,476	739,110
Royalty	1,815,964	2,304,006	3,076,603	3,409,776	3,872,107	4,134,277	4,213,210	4,567,005	4,858,883
Oil Sands									
Fees, Rentals & Royalty	23,909	28,929	36,267	51,254	229,390	234,550	371,815	310,333	141,448
Mineral Tax	76,319	76,452	96,828	99,949	145,796	134,826	155,899	159,953	185,527
Miscellaneous Mining and Administrative Revenue	614	671	365	504	525	2,628	2,864	2,096	1,158
Landman Licence Fees	5	6	13	10	15	39	34	32	30
Total Applied Revenue	2,192,671	3,230,093	4,016,430	4,692,525	5,103,418	5,170,569	5,184,010	5,708,636	6,135,195
Less Incentive Credits	49,243	75,160	114,049	98,782	148,476	156,204	156,504	73,897	127,992
Total Cash Revenue	2,143,428	3,154,933	3,902,381	4,593,743	4,954,942	5,014,365	5,027,506	5,634,739	6,007,203

Source: Public Accounts, Alberta ENR Annual Report 1985

Coal

TABLE 4.13

REMAINING ESTABLISHED RESERVES OF COAL IN ALBERTA - 1985 (BILLION TONNES)

Rank	Region	Mineability	In-Place Resources	Reserves
Low- and Medium-Volatile Bituminous	Mountain	Surface	1.30	0.620
		Underground	5.10	1.00
			6.40	1.70
High-Volatile Bituminous	Mountain	Surface	0.08	0.03
		Underground	0.86	0.05
	Foothills	Surface	2.10	1.60
		Underground	1.00	0.28
	Plains	Surface	0.01	0.00
		Underground	1.40	0.44
			5.70	2.50
Subbituminous	Plains	Surface	13.0	7.90
		Underground	33.0	9.70
			46.0	18.00
Lignite	Plains	Surface	0.15	0.08
		Underground	0.35	0.04
			0.50	**0.12**
Total*			**58.60**	**22.30**

* Figures do not add due to rounding

Source: ERCB Reserves of Coal

TABLE 4.14

DISPOSITION OF ALBERTA COAL 1971 and 1977-1985 (THOUSANDS OF TONNES)

	Sub-bituminous Sales to:			Bituminous Sales to:					Total Value of Sales
Year	Alberta	Other* Provinces	Total	Alberta	Other** Provinces	U.S.	Offshore	Total	$/000
1971	3,881	126	4,007	2	75	5	3,113	3,195	42,418
1977	7,223	447	7,670	175	26	-	4,051	4,252	210,408
1978	7,781	465	8,246	140	631	14	4,402	5,187	256,905
1979	9,226	181	9,407	100	1,630	7	3,355	5,092	238,185
1980	10,249	176	10,425	432	1,751	-	5,279	7,462	302,210
1981	11,144	77	11,221	591	1,881	-	4,139	6,611	325,750
1982	12,713	36	12,749	561	1,498	4	5,008	7,071	409,790
1983	13,980	88	14,068	505	1,418	-	5,066	6,989	471,000
1984	15,502	2	15,504	360	1,880	-	4,835	7,235	458,611
1985	17,073	1	17,074	176	1,335	-	5,406	6,831	458,500

* Consists almost entirely of shipments of high volatile bituminous coal to Ontario Hydro.
** Consists mainly of shipments to Japan, but also includes shipments to Brazil, Germany, S. Korea, India, Taiwan, Chile, Mexico, and Argentina at various times

Source: ERCB Selected Statistics Statistics Canada Coal Mines Cat. No. 26-206

Electric Power

TABLE 4.15

SUPPLY AND DISPOSAL OF ELECTRIC ENERGY - ALBERTA 1981 - 1985 (GIGAWATT HOURS)

	1981	1982	1983	1984	1985
SUPPLY					
Production	25,569.8	27,112.4	30,135.6	31,160.1	33,431.9
Imports	2.1	2.4	2.2	2.4	2.5
Inter-regional transfers	-92.5	256.4	120.0	35.0	-139.5
Total Supply	**25,479.4**	**27,371.1**	**30,257.8**	**31,197.5**	**33,294.9**
DISPOSAL					
Manufacturing	5,181.7	5,134.2	5,566.7	6,402.4	7,093.5
Mining	4,426.6	5,050.7	6,077.5	6,554.0	7,177.5
Urban transit	17.3	27.6	28.7	34.8	44.7
Pipelines	503.9	477.6	580.2	634.9	688.8
Public administration	228.5	199.4	469.5	480.7	551.3
Street lighting	288.1	296.5	N/A	N/A	N/A
Commercial institutional	7,129.3	7,785.2	8,117.9	8,383.8	8,637.6
Residential	4,540.3	5,072.9	4,984.6	5,131.0	5,323.5

TABLE 4.15 continued

Agriculture	1,130.0	1,274.7	1,275.0	1,346.2	1,412.1
Unallocated energy	2,033.4	2,052.4	3,157.7	2,229.7	2,365.9
Total Disposal	**25,479.4**	**27,371.1**	**30,257.8**	**31,197.5**	**33,294.9**

Source: Statistics Canada - Electric Power Statistics, Cat. No. 57-202 (1981-82)
- Energy Supply - Demand Cat. No. 57003 (1983-85)

TABLE 4.16

ELECTRICAL GENERATION PER CAPITA, NUMBER OF CUSTOMERS, TOTAL REVENUE, AND AVERAGE REVENUE PER kw.h - ALBERTA - 1973-1985

	Generation per Capita (kw.h)	Number of Customers ('000)	Total Revenue ($'000 000)	Average Revenue per kw.h (cents)
1973	7,595	567	174.3	1.52
1974	7,952	595	203.8	1.65
1975	7,981	624	255.4	1.97
1976	8,131	662	331.8	2.39
1977	8,783	704	403.1	2.73
1978	9,072	756	497.2	3.08
1979	9,934	802	573.3	3.20
1980	10,238	853	665.8	3.46
1981	10,481	898	840.1	4.05
1982	10,518	915	1053.5	4.68
1983	11,163	960	1220.7	5.14
1984	12,061	974	1,384.6	5.36
1985	12,941	988	1,513.1	5.49

Source: ERCB - Alberta Electric Industry Annual Statistics 1985

TABLE 4.17

ENERGY CONSUMPTION - ALBERTA - 1980-1985 (GIGAWATT HOURS)

	1980	1981	1982	1983	1984	1985
Industrial	9,498.0	10,239.5	11,203.2	9,070.4	10,797.6	11,964.6
Residential	4,020.0	4,278.6	4,757.6	4,724.4	5,147.6	5,337.9
Commercial	4,603.4	5,108.3	5,280.1	8,685.2	8,523.8	8,828.9
Agricultural	1,088.3	1,120.4	1,267.9	1,262.4	1,326.3	1,392.0
Total	**19,209.7**	**20,746.8**	**22,508.8**	**23,742.4**	**25,795.4**	**27,523.5**

Source: ERCB - Alberta Electric Industry Annual Statistics

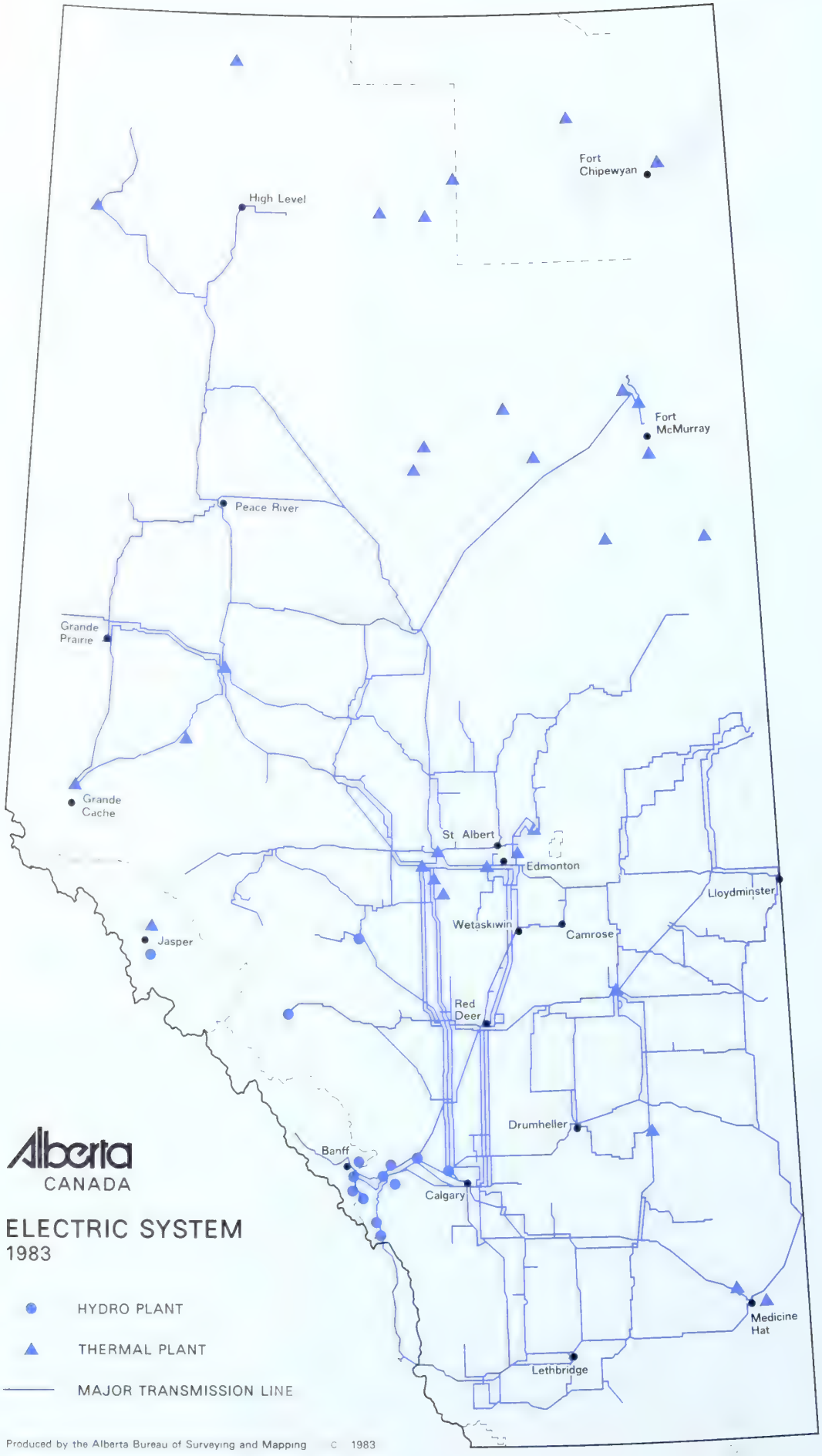

Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St Albert
Edmonton
Lloydminster
Wetaskiwin
Camrose
Jasper
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
ELECTRIC SYSTEM
1983
HYDRO PLANT
THERMAL PLANT
MAJOR TRANSMISSION LINE
Produced by the Alberta Bureau of Surveying and Mapping © 1983

TABLE 4.18

NET CAPACITY AND NET GENERATION OF POWER PLANTS - ALBERTA — 1985

	Net Installed Capacity MW	Net Generation GW.h
Interconnected System		
Transalta Utilities Corporation		
Hydro	808.1	1,384.7
Thermal	3,308.0	23,180.7
Alberta Power Limited		
Thermal	966.7	4,991.2
Edmonton Power		
Thermal	997.0	381.6
City Of Medicine Hat		
Thermal	159.5	524.7
Total Interconnected System	**6,239.3**	**30,463.8**
Isolated Plants		
Hydro	1.4	6.7
Thermal	25.5	53.5
Total	**25.5**	**53.4**
Total Alberta Utilities	**6,264.8**	**30,517.2**
Industrial On-Site Plants	685.6	2,923.6

Source ERCB - Alberta Electric Industry Annual Statistics 1985

TABLE 4.19

CAPACITY OF POWER PLANTS BY TYPE & ENERGY RESOURCE & BY UTILITY OPERATOR - ALBERTA - 1985 (MEGAWATTS)

	Net Installed Capacity	Hydro	Steam Turbine		Gas Turbine	Internal Combustion	
			Coal	Gas	Gas	Gas	Fuel Oil
TransAlta Utilities Corporation	4,116.1	808.1	3,308.0	-	-	-	-
Edmonton Power	997.0	-	-	944.0	56.0	-	-
Alberta Power Limited	992.2	1.4	850.0	-	110.1	22.2	8.5
City of Medicine Hat	159.5	-	-	52.5	107.0	-	-
Total	**6,264.8**	**809.5**	**4,158.0**	**993.5**	**273.1**	**22.2**	**8.5**

Source ERCB - Alberta Electric Industry Annual Statistics - 1985

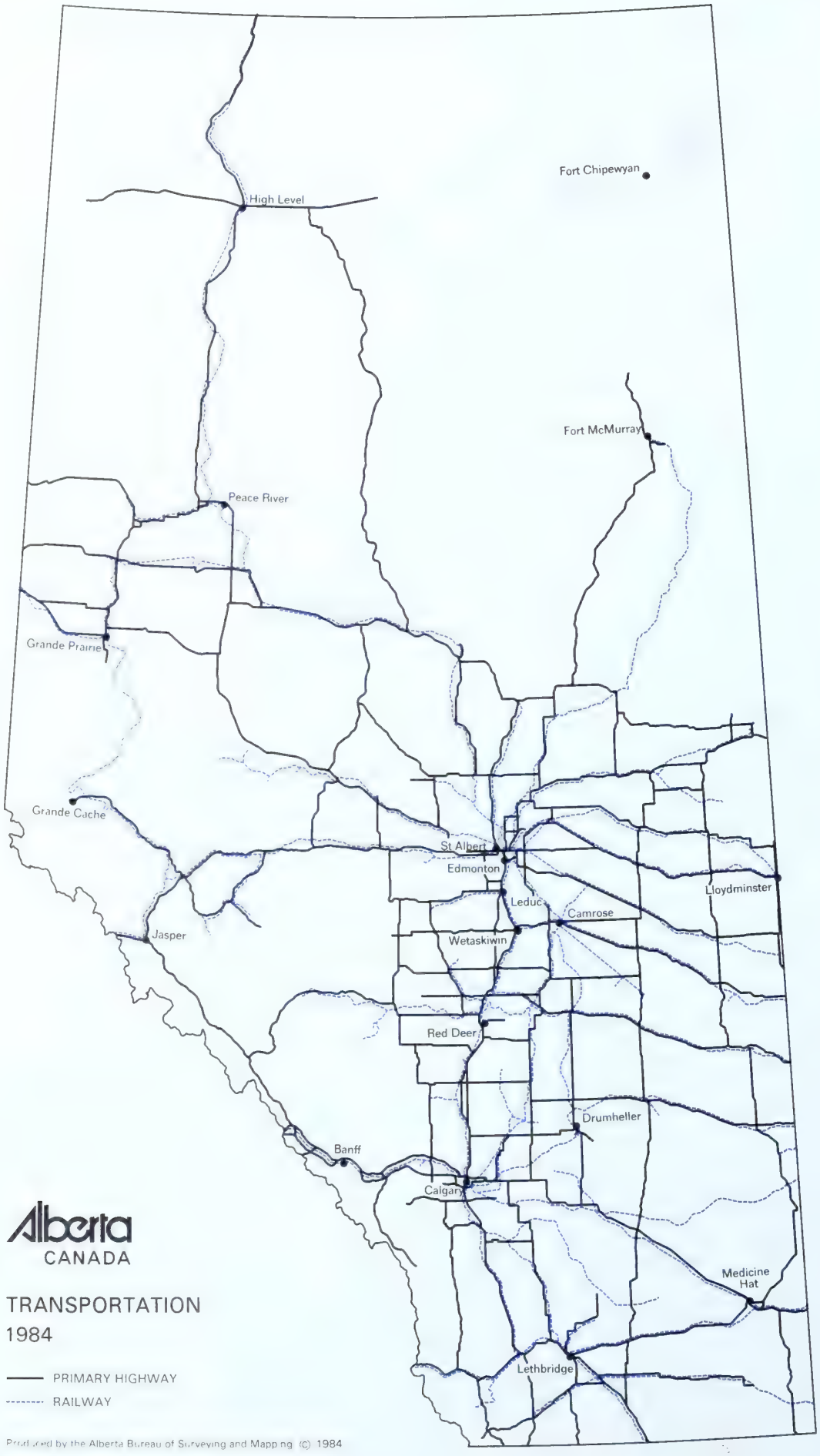

Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St Albert
Edmonton
Lloydminster
Leduc
Camrose
Jasper
Wetaskiwin
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
TRANSPORTATION
1984
PRIMARY HIGHWAY
RAILWAY
Produced by the Alberta Bureau of Surveying and Mapping (c) 1984

TABLE 5.1

HIGHWAYS AND ROADWAYS, GRADED, GRAVELLED, OIL TREATED AND PAVED - RURAL AREAS - 1980-1985 (KILOMETRES)

				Paved				
	Graded	Gravelled	Oil Treated	2-lane	4-lane	6-lane	Total	Total
Primary Highways								
1980	-	1,344	1,488	9,507	613	43	10,163	**12,995**
1981	-	1,409	1,281	9,748	613	43	10,404	**13,094**
1982	-	1,367	1,103	10,165	599	40	10,804	**13,274**
1983	-	1,314	976	10,279	703	40	11,022	**13,312**
1984	-	1,122	759	10,398	844	51	11,293	**13,174**
1985	-	1,083	569	10,777	897	65	11,739	**13,391**
Approach Roads								
1980	-	38	42	240	-	-	240	**320**
1981	-	30	50	240	-	-	240	**320**
1982	-	29	44	263	-	-	263	**336**
1983	-	20	33	302	-	-	302	**355**
1984	-	21	23	309	-	-	309	**363**
1985	-	26	20	317	-	-	317	**363**
Park, Secondary and Local Roads								
1980	24,718	96,658	11,567	2,528	-	-	2,528	**135,471**
1981	24,606	97,726	11,685	3,432	-	-	3,432	**137,448**
1982	23,265	99,971	9,785	3,487	-	-	3,487	**136,508**
1983	23,115	101,336	9,449	3,897	-	-	3,897	**137,797**
1984	22,227	102,218	9,363	4,264	-	-	4,264	**138,072**
1985	19,017	103,965	9,026	5,556	-	-	5,556	**137,564**
Total								
1980	24,718	98,040	13,097	12,275	613	43	12,931	**148,785**
1981	24,606	99,165	13,016	13,420	613	43	14,076	**150,862**
1982	23,265	101,367	10,932	13,915	599	40	14,554	**150,118**
1983	23,115	102,670	10,458	14,478	703	40	15,221	**151,464**
1984	22,227	103,371	10,145	14,971	844	51	15,866	**151,609**
1985	19,017	105,074	9,615	16,650	897	65	17,612	**151,318**

Source Alberta Transportation

TABLE 5.2

MOTOR VEHICLE REGISTRATIONS BY TYPE - ALBERTA - 1975-1986 (NUMBER)

	Passenger Car	Truck	Bus	Rental Vehicle	Taxi	School Bus	Trailer	Motor-Cycle	Other	Total
1975	690,330	318,932	1,558	8,199	1,788	4,032	148,181	32,269	4,238	**1,209,527**
1976	704,743	319,193	1,698	7,202	1,794	4,020	154,362	29,621	5,790	**1,228,423**
1977	760,861	335,568	1,993	7,537	1,749	4,173	171,584	31,586	6,975	**1,319,026**
1978	855,419	370,600	2,154	6,991	2,005	4,206	184,196	33,861	7,848	**1,467,280**
1979	949,233	405,679	2,360	8,622	2,429	4,206	204,277	40,644	8,780	**1,626,230**
1980	1,026,502	438,890	2,440	11,546	2,826	4,488	214,836	44,722	10,885	**1,757,135**
1981	1,126,990	458,881	2,773	13,357	3,208	4,632	233,227	52,987	10,969	**1,906,964**
1982	1,200,010	469,570	2,861	13,184	3,478	4,732	239,997	55,639	11,394	**2,000,865**
1983	1,246,026	460,613	3,129	10,451	3,648	4,797	247,019	59,900	11,429	**2,047,012**
1984	1,277,502	438,799	3,199	9,156	3,518	4,824	247,629	59,456	11,179	**2,055,262**
1985	1,264,339	400,059	3,212	9,826	3,309	4,779	247,539	59,638	11,107	**2,003,808**
1986	1,278,710	395,233	3,154	10,183	3,612	4,446	303,131	46,446	12,449	**2,057,364**

TABLE 5.3

LANDINGS PLUS TAKE-OFFS, ITINERANT AND LOCAL FLIGHTS, SELECTED AIRPORTS - ALBERTA - 1971 AND 1979-1984 (NUMBER)

	1971	1979	1980	1981	1982	1983	1984
Calgary International	180,009	225,619	235,422	233,170	198,467	187,731	195,230
Edmonton Municipal	175,825	201,036	194,883	185,963	144,221	132,306	130,111
Edmonton International	84,812	100,194	99,913	94,937	80,885	75,867	76,044
Footner Lake	9,399	11,839	17,087	19,103	20,344	17,405	17,956
Fort Chipewyan	-	8,910	5,637	5,524	5,607	6,665	4,297
Fort McMurray	9,484	55,395	46,895	62,843	60,753	51,865	58,647
Grande Prairie	38,496	68,018	76,574	71,820	46,793	41,162	40,463
Lethbridge	50,540	56,741	50,283	57,180	45,980	44,994	46,401
Lloydminster	-	-	-	-	-	17,350	22,735
Medicine Hat	13,885	25,411	26,252	31,584	21,444	19,050	20,763
Peace River	16,553	26,400	23,871	28,262	26,612	30,627	27,276
Rainbow Lake	3,444	862	3,251	2,385	2,515	2,649	2,703

TABLE 5.3 continued

LANDINGS PLUS TAKE-OFFS, ITINERANT AND LOCAL FLIGHTS, SELECTED AIRPORTS - ALBERTA - 1971 AND 1979-1984 (NUMBER)

Red Deer	43,858	51,714	57,812	55,979	43,183	48,336	48,496
Slave Lake	-	12,654	15,308	19,598	15,585	12,576	13,090
Springbank	142,709	241,149	227,702	231,736	170,218	137,771	120,190
Vermilion	1,366	10,252	9,913	12,440	736	N.A.	N.A.
Whitecourt	3,509	18,230	22,993	20,620	19,270	14,220	8,557

(1) These statistics show the total of landings and take-offs of local and itinerant flights. A local movement is one in which the aircraft remains at all times within the airport tower control zone. An itinerant movement is one in which the aircraft enters or leaves the airport tower control zone.
Source: Transport Canada, Aviation Statistics Centre "Aircraft Movement Statistics"

TABLE 5.4

DEPLANED PLUS ENPLANED PASSENGERS, AIRMAIL AND CARGO FREIGHT, SCHEDULED AIRLINE FLIGHTS - CALGARY AND EDMONTON AIRPORTS -1964-1984

	Edmonton International			Edmonton Municipal			Calgary International		
	Passengers ('000)	Mail ('000 of kilograms)	Cargo	Passengers ('000)	Mail ('000 of kilograms)	Cargo	Passengers ('000)	Mail ('000 of kilograms)	Cargo
1964	300	2,320	2,126	96	625	2,197	465	1,489	2,081
1965	357	2,486	3,197	138	702	3,288	555	1,611	2,493
1966	393	1,757	3,850	189	787	2,509	672	1,531	3,631
1967	472	1,830	4,490	225	800	2,834	828	1,938	3,967
1968	522	2,177	6,132	247	888	2,748	918	2,004	5,226
1969	538	2,767	5,909	298	922	3,223	1,060	2,791	6,631
1970	585	2,338	6,859	367	870	3,543	1,203	2,222	7,935
1971	605	2,606	8,374	387	875	3,890	1,262	2,598	9,140
1972	709	2,532	8,354	456	968	4,658	1,415	2,580	9,575
1973	885	3,352	11,506	580	1,017	4,399	1,833	3,039	12,398
1974	1,138	4,169	15,966	635	621	3,378	2,079	3,423	13,835
1975	1,366	3,936	17,248	607	274	3,052	2,218	3,089	14,039
1976	1,443	5,243	18,331	575	211	2,149	2,297	3,917	16,751
1977	1,582	6,013	20,092	696	223	2,266	2,593	4,377	17,734
1978	1,752	6,181	24,807	763	215	1,428	2,926	4,581	19,450
1979	2,112	7,097	24,024	853	250	1,701	3,585	5,424	23,407
1980	2,339	6,968	28,004	923	196	1,950	4,031	6,302	23,126
1981	2,312	6,941	24,922	947	148	1,787	4,254	6,981	26,004
1982	2,033	6,969	24,952	789	173	2,139	3,797	8,101	27,590
1983	1,812	7,149	27,392	731	226	1,914	3,533	8,952	29,837
1984	1,847	7,266	28,593	738	169	1,830	3,633	9,680	35,033

Source: Statistics Canada - Air Traffic at Canadian Airports Cat. No. 51-203

TABLE 5.5

NORTHBOUND WATER FREIGHT SHIPPED VIA FORT McMURRAY AND HAY RIVER - 1961-1986

	Ft. McMurray (tonnes)	Hay River (tonnes)	Total (tonnes)
1961	23,369	36,134	59,502
1962	56,460	33,726	90,186
1963	55,973	34,895	90,869
1964	55,111	43,439	98,550
1965	49,130	36,809	85,939
1966	39,264	30,241	69,504
1967	39,272	33,283	72,555
1968	46,825	58,398	105,223
1969	34,647	110,935	145,582
1970	31,288	125,581	156,869
1971	33,493	108,976	142,469
1972	24,943	224,056	248,999
1973	23,071	166,195	189,266
1974	39,837	172,995	212,832
1975	35,174	197,503	240,842
1976	36,959	155,592	192,551
1977	53,988	106,000	159,988
1978	58,391	117,280	175,671
1979	69,716	122,589	192,305
1980	50,211	136,399	186,610
1981	46,499	164,940	211,439
1982	14,850	177,344	192,194
1983	9,487	182,651	191,257
1984	10,000*	123,673	134,000
1985	10,000*	134,401	144,000*
1986	10,000*	87,998	98,000*

Source: Northern Transportation Co. Ltd

*estimated

Personal Income Tax Data

TABLE 6.1

TOTAL AND PER CAPITA REPORTED TAXABLE PLUS NON-TAXABLE INCOME BY CENSUS DIVISION ALBERTA 1961-1971 - 1983 (TOTALS IN MILLIONS OF DOLLARS; PER CAPITA IN DOLLARS)

	1961		1971			1983		
Census Division	Total	Per Capita	Total	Per Capita	Change Per Capita 1961-1971 (%)	Total	Per Capita	Change Per Capita 1961-1971 (%)
1	42.9	1,096	88.3	2,253	105.6	601.9	10,583	369.7
2	88.0	1,056	197.9	2,286	116.5	1,209.8	10,544	361.2
3	22.0	710	54.3	1,745	145.8	276.3	7,476	328.4
4	12.5	832	23.4	1,803	116.7	125.7	10,137	462.2
5	34.4	903	53.4	1,547	71.3	372.8	9,415	508.6
6	475.5	1,495	1,391.9	3,111	108.1	9,604.4	13,584	336.6
7	29.5	722	61.8	1,613	123.4	376.3	9,161	467.9
8	70.9	926	171.6	2,005	116.5	1,295.7	9,981	397.8
9	24.5	1,208	59.0	2,982	146.9	263.6	11,597	288.9
10	43.7	623	104.7	1,591	155.4	773.7	9,636	505.7
11	566.2	1,379	1,571.3	2,844	106.2	9,634.0	12,013	322.4
12	18.3	387	65.8	1,205	211.4	954.7	10,810	797.1
13	21.7	478	56.0	1,278	167.4	444.9	8,061	530.8
14	19.0	985	47.0	2,167	120.0	282.5	10,828	399.6
15	45.0	585	143.3	1,512	158.5	1,088.9	8,157	439.5
Total Alberta	1,514.0	1,137	4,089.2	2,512	120.9	27,305.2	11,640	363.4

Source: Revenue Canada, Taxation "Taxation Statistics"

TABLE 6.2

AVERAGE TOTAL INCOME OF TAXABLE PERSONS BY OCCUPATIONAL CLASSES, ALBERTA, 1973 AND 1978-1983 (DOLLARS)

	1973	1978	1979	1980	1981	1982	1983
Total Employees	**8,425**	**16,511**	**17,746**	**19,611**	**22,072**	**24,600**	**26,329**
Employees of Business	8,437	16,567	17,847	19,755	22,259	24,885	26,268
Employees of Institutions	6,283	13,784	14,245	16,360	18,733	21,224	22,830
Teachers and Professors	11,320	21,747	22,559	23,596	27,455	29,983	33,899
Federal Employees	9,084	17,619	19,063	21,054	23,875	27,472	28,391
Provincial Employees	8,204	16,053	18,048	19,886	21,605	23,778	26,066
Municipal Employees	8,843	16,293	17,926	19,494	22,064	25,272	27,829
Armed Forces	10,217	16,685	17,022	18,709	20,696	23,378	25,185
Federal Crown Corporation	-	-	-	-	-	-	32,240

TABLE 6.2 continued

	1973	1978	1979	1980	1981	1982	1983
Provincial Crown Corporation	-	-	-	-	-	-	28,602
Unclassified	5,646	13,169	13,684	15,846	16,194	17,235	22,640
Farmers and Fishermen	9,645	18,800	21,572	22,653	27,863	26,966	24,879
Total Professionals	26,010	33,710	34,227	36,802	38,017	39,385	47,966
Accountants	22,688	32,260	39,070	42,519	38,824	44,292	53,049
Medical Doctors and Surgeons	39,884	50,557	58,091	70,984	71,440	87,598	97,997
Dentists	32,735	44,929	54,866	57,866	59,063	55,072	102,691
Lawyers and Notaries	37,738	51,567	50,286	53,737	71,953	88,683	121,367
Engineers and Architects	29,907	39,494	42,032	64,357	48,379	53,077	92,569
Entertainers and Artists	6,054	10,962	11,392	12,654	13,694	15,423	17,967
Other Professionals	11,904	21,579	21,642	23,310	25,478	25,462	28,860
Salesmen	9,610	19,081	21,215	23,018	23,116	25,910	20,610
Total Business Proprietors	8,770	18,476	19,581	20,955	21,165	23,104	21,382
Forestry Operators	11,619	33,444	19,762	17,278	14,992	22,100	47,067
Manufacturers	10,418	14,858	17,372	19,067	18,957	20,341	18,987
Construction	8,746	16,305	16,433	17,273	18,065	18,365	17,189
Public Utilities	7,608	15,371	16,866	17,148	17,633	19,310	19,523
Wholesale Traders	10,458	27,799	24,049	29,741	42,739	62,623	57,401
Retail Traders	9,547	18,328	18,617	19,588	20,865	20,104	19,468
Insurance Agency Operators	11,198	22,857	28,029	29,875	20,795	37,800	16,442
Real Estate Agency Operators	19,700	41,129	38,361	50,582	63,589	57,017	112,036
Other Finance	28,557	61,229	63,533	80,850	47,596	106,297	63,218
Recreational Services Operators	8,329	24,651	23,988	42,442	21,363	25,065	30,422
Business Services Operators	7,520	12,964	16,683	14,612	17,000	18,471	17,668
Other Service Operators	7,710	16,653	18,581	18,725	18,983	22,873	19,898
Other Business Proprietors	10,928	39,791	48,098	62,288	69,118	54,380	40,926
Total Investment	8,920	28,336	32,818	35,649	38,584	41,341	39,325
Investors	8,937	29,468	34,113	36,975	39,582	42,409	41,005
Property Owners	8,851	22,140	23,974	25,301	29,332	30,226	25,666
Pensioners	5,813	14,002	14,512	15,972	17,206	18,257	19,694
Unclassified	4,150	11,934	15,417	16,377	16,740	13,356	12,871
Grand Total	8,570	17,214	18,739	20,700	23,330	25,631	26,370

Note: A Provincial Legislative Act passed in 1976 allowed for the introduction of professional corporations. This accounts for the drop in 1977 income shown for many of the professional occupation categories. Year-to-year data fluctuations may be the result of sample variations.
Source: Revenue Canada Taxation - "Taxation Statistics"

TABLE 6.3

NUMBER OF TAXFILERS * BY INCOME CLASSES - ALBERTA AND MAJOR CITIES - SELECTED YEARS - 1965-1983 (THOUSANDS)

Income Classes	1965	1971	1973	1975	1977	1979	1981	1982	1983
Alberta									
Under $5,000	363.1	377.2	354.8	287.8	248.6	321.1	272.4	260.8	268.8
$5,000 - $10,000	122.1	221.3	260.3	265.1	274.3	268.2	252.2	228.8	226.6
$10,000 - $20,000	17.7	95.0	165.5	279.2	342.2	398.9	427.3	406.1	371.9
$20,000 and over	3.1	11.4	24.6	83.2	162.8	270.0	475.0	536.6	530.4
Total Taxfilers	**505.9**	**718.1**	**805.2**	**915.4**	**1,027.9**	**1,258.2**	**1,426.9**	**1,432.3**	**1,397.7**
Calgary									
Under $5,000	91.3	104.9	91.6	78.6	68.5	79.8	66.8	62.6	65.0
$5,000 - $10,000	36.0	67.3	75.9	73.8	79.9	76.2	69.6	60.5	59.5
$10,000 - $20,000	6.3	31.9	51.7	81.7	101.4	119.0	130.0	119.6	106.4
$20,000 and over	1.3	5.0	9.1	25.8	48.0	82.7	130.8	171.2	168.1
Edmonton									
Under $5,000	109.7	115.9	115.2	88.4	74.9	90.0	74.5	59.9	62.7
$5,000 - $10,000	43.6	78.4	88.3	88.3	86.6	82.4	73.3	56.2	55.3
$10,000 - $20,000	6.4	36.2	61.1	96.9	116.5	133.2	136.3	112.6	100.3
$20,000 and over	1.1	4.2	8.6	29.9	60.6	91.5	151.2	141.3	140.3
Lethbridge									
Under $5,000	13.2	11.9	11.1	8.2	7.4	3.0	7.0	7.0	7.4
$5,000 - $10,000	3.8	7.0	7.9	8.5	7.8	7.5	6.9	6.5	6.3
$10,000 - $20,000	.5	2.5	4.2	8.0	9.9	11.3	11.5	11.5	10.9
$20,000 and over	.1	.4	.7	2.2	4.0	6.4	11.4	13.5	13.8
Medicine Hat									
Under $5,000	7.4	7.5	6.4	6.0	4.5	6.6	5.4	5.1	5.3
$5,000 - $10,000	2.3	4.1	5.0	3.1	5.4	5.3	5.0	4.8	4.9
$10,000 - $20,000 *	.3	1.5	3.3	6.8	10.5	12.5	16.3	7.5	7.0
$20,000 and over	-	-	-	-	-	-	-	9.3	9.4
Red Deer									
Under $5,000	7.6	8.3	7.5	5.6	4.9	6.5	6.2	6.0	6.3
$5,000 - $10,000	2.4	4.5	5.7	6.0	5.5	5.8	5.9	5.7	5.4
$10,00 - $20,000 *	.4	2.1	3.4	7.8	10.9	14.8	20.9	10.6	9.3
$20,000 and over	-	-	-	-	-	-	-	12.0	12.9

* $10,000 and over until 1981, as shown from 1982 and 1983

Source: Revenue Canada, Taxation "Taxation Statistics"

* Note. Includes taxable plus non-taxable taxfiler returns

TABLE 6.4

DISTRIBUTION OF ALL TAXFILERS RETURNS (TAXABLE AND NON-TAXABLE) BY SOURCES OF INCOME - ALBERTA AND MAJOR CITIES - SPECIFIED YEARS 1977-1983 (MILLIONS OF DOLLARS)

Taxation Year	Total Number of Returns	Wages & Salaries	Commissions & Other Employment Earnings	Family Allowances	Unemployment Insurance Benefits	Old Age CPP or Other Pensions	Net Business Income	Net Profess. Income	Net Commiss. Income	Net Farming or Fishing Income
Edmonton										
1977	338.6	3,531.5	109.1	48.9	38.5	93.5	60.6	93.9	11.6	2.5
1979	396.7	4,575.7	146.1	41.3	43.6	132.3	66.7	88.2	14.0	2.6
1981	443.7	6,359.6	181.6	50.8	58.7	241.2	68.4	119.7	14.9	-5.5
1983	364.6	5,607.1	120.1	45.6	230.7	281.4	65.4	117.5	6.7	-114.4
Calgary										
1977	297.8	2,973.0	88.6	40.3	35.6	93.0	48.5	92.8	6.8	3.9
1979	359.6	4,143.8	162.5	36.6	44.1	128.0	33.4	111.5	12.2	8.2
1981	415.6	6,291.9	270.6	42.5	56.2	189.6	36.6	182.5	20.9	-10.1
1983	397.8	6,835.6	221.2	53.0	251.3	249.4	67.3	223.1	15.0	-.9
Lethbridge										
1977	29.1	248.5	8.3	4.5	3.9	12.7	9.7	8.9	1.0	4.4
1979	32.7	303.9	11.1	3.4	3.5	20.2	8.3	11.6	1.1	7.2
1981	36.4	427.9	15.7	4.4	4.3	26.5	7.8	11.6	2.0	12.0
1983	37.4	480.0	15.7	5.8	14.8	38.7	14.2	11.9	1.8	11.4
Medicine Hat										
1977	20.5	178.7	4.1	3.4	2.7	9.0	7.5	3.3	.5	8.3
1979	25.5	240.5	6.6	2.9	3.3	14.3	9.0	4.5	.2	9.8
1981	25.7	297.9	8.5	3.5	3.6	16.1	8.2	5.0	.5	14.1
1983	26.5	335.5	8.9	4.0	14.4	28.9	4.9	3.2	.1	7.7
Red Deer										
1977	21.2	199.7	6.0	2.9	2.1	6.3	6.8	6.9	.5	2.9
1979	29.0	293.4	10.4	2.9	3.6	9.0	6.1	6.5	.6	2.2
1981	32.2	417.4	15.3	4.3	4.1	16.4	8.4	9.1	1.1	1.4
1983	33.8	492.2	10.5	4.3	21.9	19.0	6.1	8.8	.6	1.8
Alberta										
1977	1,027.9	9,661.0	260.8	163.2	121.4	312.0	260.2	250.0	30.5	257.2
1979	1,261.0	13,117.5	406.1	145.2	142.9	433.0	287.4	273.1	39.6	361.8
1981	1,426.0	19,034.0	592.2	179.6	182.7	653.9	338.3	393.7	53.6	409.5
1983	1,400.1	20,798.2	480.1	214.4	784.8	905.1	361.2	456.4	37.8	281.2

TABLE 6.4 continued

Taxation Year	Taxable Amounts of Dividends	Bond & Bank Interest	Mortgage Interest	Income From Trusts	Annuity & Other Cdn. Investment Income	Foreign Investment Income	Net Rental Income	Net Taxable Capital Gains	Miscel-laneous Income	Total Income Assessed
Edmonton										
1977	51.4	142.5	8.2	7.3	25.3	2.8	1.3	42.8	42.0	4,311.1
1979	197.3	249.7	15.2	11.8	18.7	3.5	-21.6	88.2	81.1	5,749.3
1981	352.6	475.4	19.6	13.1	41.3	6.5	-19.5	133.8	125.1	8,282.4
1983	303.2	355.5	11.9	-12.7	40.9	5.4	19.5	43.4	121.5	7,387.6
Calgary										
1977	58.4	131.1	6.9	8.3	27.1	3.2	-.9	58.1	43.8	3,718.5
1979	220.4	237.2	7.4	11.1	24.3	9.9	-16.1	216.0	119.3	5,509.8
1981	407.3	494.7	11.5	16.4	66.5	14.2	-45.6	231.2	153.0	8,430.2
1983	400.8	368.0	14.4	10.0	72.2	19.2	-12.9	97.0	212.4	9,096.4
Lethbridge										
1977	4.6	18.3	.7	.7	.20	.1	1.4	4.4	3.7	337.7
1979	19.0	28.9	9	9	2.6	.3	1.0	7.6	5.9	437.3
1981	35.1	56.6	6	1.7	4.3	.3	1.0	9.8	8.7	630.4
1983	34.6	46.0	1.9	2.2	6.5	1.0	5.3	6.9	12.3	711.0
Medicine Hat										
1977	4.2	13.2	.5	.5	2.4	.1	1.2	3.8	1.6	245.3
1979	11.0	20.4	.7	.7	2.7	.1	.3	7.0	3.7	337.8
1981	18.9	43.2	1.0	1.0	4.8	.1	1.4	12.1	6.6	446.6
1983	15.0	37.9	.5	.6	6.3	.1	2.1	9.2	8.2	487.7
Red Deer										
1977	3.7	9.8	.7	.4	2.2	.1	1.3	4.5	2.7	259.5
1979	15.0	17.1	.5	.6	2.8	.2	.6	7.8	5.9	385.3
1981	27.6	33.4	1.0	1.0	3.7	.3	.4	9.9	7.8	561.7
1983	27.4	24.6	1.3	.8	4.6	.5	.9	3.3	10.4	639.1
Alberta										
1977	155.5	484.4	25.0	31.1	84.3	7.9	15.8	177.8	124.1	12,422.7
1979	623.8	831.5	36.9	36.2	85.6	15.8	-23.2	274.5	278.2	17,565.8
1981	1,201.1	1,750.2	51.3	51.7	184.9	25.1	-51.8	604.0	410.0	26,092.0
1983	1,144.0	1,378.8	53.5	42.6	203.7	30.8	42.8	295.2	502.0	28,013.2

Source: Revenue Canada, Taxation "Taxation Statistics"

TABLE 6.5

NUMBER OF TAXATION RETURNS, TOTAL INCOME, AVERAGE INCOME ALBERTA CITIES, SPECIFIED YEARS 1973-1983.

	Taxable Returns			
	No. of Filers	Total Income	Average Income	Year
		('000)	$	
Airdrie	778	7,088	9,111	1973
	829	11,435	13,793	1975
	1,220	19,834	16,257	1977
	2,993	53,262	17,795	1979
	5,244	117,910	22,484	1981
	4,997	125,434	25,102	1983
Calgary	188,166	1,709,627	9,086	1973
	191,226	2,536,641	13,265	1975
	221,968	3,464,517	15,608	1977
	264,394	5,057,766	19,130	1979
	326,363	7,903,270	24,216	1981
	303,036	8,431,560	27,824	1983
Camrose	3,900	29,480	7,559	1973
	4,225	50,580	11,971	1975
	4,526	64,297	14,206	1977
	5,366	90,924	16,944	1979
	6,461	137,860	21,337	1981
	6,863	163,243	23,786	1983
Drumheller	2,602	20,554	7,899	1973
	2,566	33,368	13,004	1975
	2,685	38,865	14,474	1977
	2,964	49,463	16,688	1979
	3,448	74,731	21,673	1981
	3,416	79,196	23,184	1983
Metro Edmonton	225,600	1,960,698	8,691	1973
	226,305	2,947,885	13,026	1975
	254,527	4,037,515	15,863	1977
	292,175	5,300,536	18,142	1979
	335,235	7,559,816	22,551	1981
	317,357	8,173,577	25,755	1983
Fort McMurray	3,603	35,406	9,826	1973
	6,239	99,342	15,922	1975
	9,752	186,302	19,103	1977

TABLE 6.5 continued

	Taxable Returns			
	No. of Filers	Total Income	Average Income	Year
	12,055	258,239	21,421	1979
	15,329	426,750	27,839	1981
	15,272	532,795	34,887	1983
Fort Saskatchewan	4,344	70,630	16,259	1977
	5,624	109,022	19,385	1979
	6,590	160,886	24,413	1981
	6,332	178,278	28,155	1983
Grande Prairie	7,195	59,873	8,321	1973
	7,592	93,865	12,363	1975
	8,389	126,173	15,040	1977
	11,440	210,662	18,414	1979
	13,115	300,121	22,883	1981
	11,878	297,852	25,076	1983
Leduc	3,159	27,700	8,768	1973
	3,669	48,090	13,107	1975
	4,673	74,165	15,871	1977
	5,605	107,357	19,153	1979
	6,836	161,582	23,636	1981
	6,336	163,647	25,828	1983
Lethbridge	19,055	157,054	8,242	1973
	19,308	246,068	12,744	1975
	20,911	311,146	14,880	1977
	23,454	403,593	17,208	1979
	27,147	583,384	21,490	1981
	27,289	658,587	24,134	1983
Lloydminster (Alberta Portion Only)	2,177	18,194	8,357	1973
	2,966	38,898	13,114	1975
	3,428	54,064	15,771	1977
	4,577	88,635	19,365	1979
	6,003	143,247	23,862	1981
	5,874	149,648	25,476	1983
Medicine Hat	11,781	98,931	8,398	1973
	12,315	158,479	12,869	1975
	14,808	225,759	15,246	1977
	16,462	287,412	17,459	1979
	19,276	427,145	22,159	1981

	Taxable Returns			
	No. of Filers	Total Income	Average Income	Year
	18,531	446,919	24,117	1983
Red Deer	13,591	108,904	8,013	1973
	14,394	180,139	12,515	1975
	15,918	241,580	15,177	1977
	19,488	339,343	17,413	1979
	24,639	530,676	21,538	1981
	24,677	607,579	24,621	1983
St. Albert	11,442	197,451	17,256	1977
	13,396	271,263	20,249	1979
	15,868	396,633	24,995	1981
	16,494	466,732	28,297	1983
Wetaskiwin	3,157	24,103	7,634	1973
	3,069	36,407	11,862	1975
	3,442	49,728	14,447	1977
	4,230	72,942	17,244	1979
	5,108	102,973	20,159	1981
	4,872	108,185	22,205	1983

Source: Revenue Canada, "Taxation Statistics"

TABLE 6.6

NUMBERS AND DECLARED PERSONAL INCOME OF TAXFILERS BY AGES - ALBERTA 1980-1984 (NUMBER FIGURES IN THOUSANDS - INCOME FIGURES IN MILLIONS OF DOLLARS)

	1980		1981		1982		1983	
Age	No.	Income	No.	Income	No.	Income	No.	Income
Under 21	167.7	1,176.7	81.1	986.4	68 .7	886.2	43.3	557.7
21	49.6	511.9	37.7	547.6	32.3	484.3	26.9	420.7
22	42.4	490.6	38.2	597.1	38.7	638.6	31.5	523.7
23	52.2	644.5	38.8	645.5	39.5	720.4	33.6	601.6
24	47.0	617.5	40.9	723.1	40.0	764.3	36.0	726.4
25	47.7	643.4	39.1	734.3	37.0	766.5	36.3	743.3
26	48.0	667.4	37.8	751.4	38.8	841.5	36.9	810.1
27	43.3	629.1	38.5	793.6	36.5	823.7	36.3	837.1
28	41.6	622.8	32.6	697.3	37.4	873.1	34.3	826.9
29	37.3	591.8	36.0	759.4	34.4	830.1	35.6	873.6
30	34.9	555.3	28.8	688.6	28.6	729.6	30.9	781.8
31	37.2	602.4	29.2	660.8	32.7	844.8	30.1	777.6
32	34.5	586.7	27.6	670.5	28.7	767.9	25.7	716.4
33	33.9	586.8	28.8	714.8	27.8	769.1	25.8	707.4
34	33.7	569.9	25.7	697.4	27.0	717.9	27.4	789.2

TABLE 6.6 continued

Age	1980		1981		1982		1983	
	No.	Income	No.	Income	No.	Income	No.	Income
35	26.9	482.9	26.5	687.4	30.6	884.2	25.0	729.6
36	27.4	530.7	21.6	570.5	24.4	708.6	27.8	824.7
37	29.2	537.7	21.1	581.5	21.5	647.1	25.0	745.1
38	23.4	438.7	20.7	573.8	20.8	634.0	20.6	645.1
39	20.6	395.7	19.3	530.3	20.4	617.6	18.2	588.0
40	22.0	442.6	18.6	528.3	18.6	578.9	20.1	618.4
41	17.7	388.8	18.4	509.7	17.9	554.3	19.8	610.9
42	17.9	372.3	16.6	469.4	17.6	541.1	16.9	512.9
43	19.2	383.1	14.3	415.9	17.0	533.4	17.8	558.3
44	18.4	385.5	13.3	402.7	14.9	489.1	16.4	515.9
45	19.7	413.4	15.2	454.7	12.9	432.4	15.9	510.1
46	18.5	377.5	15.7	459.9	14.9	475.9	14.8	458.2
47	16.7	371.9	14.5	436.2	14.9	472.7	15.7	484.3
48	17.5	392.0	15.4	449.3	14.0	463.9	15.1	494.6
49	15.7	363.7	15.6	447.0	14.7	485.7	13.8	451.7
50	18.5	382.0	13.8	431.3	15.3	482.4	14.1	459.1
51	18.2	399.6	13.8	442.1	16.4	519.9	13.8	423.4
52	16.6	359.9	13.4	384.9	14.4	501.2	13.5	446.1
53	14.2	321.1	14.4	442.0	14.0	429.9	13.2	441.7
54	16.1	329.3	13.0	381.2	13.5	423.8	12.3	385.5
55	16.3	323.3	11.4	345.5	12.7	398.2	12.7	459.2
56	13.1	272.7	12.3	378.4	12.7	410.2	10.9	363.4
57	12.1	259.0	10.0	301.1	10.2	337.7	10.8	348.0
58	13.0	275.5	13.0	342.3	11.1	359.1	10.3	345.7
59	11.8	222.1	10.4	294.9	11.6	351.6	10.7	315.5
60	12.2	232.6	9.9	264.1	10.6	339.1	8.9	286.5
61	10.6	187.1	8.6	249.2	9.7	281.7	9.9	298.8
62	9.5	182.3	6.9	189.3	8.3	226.2	9.2	279.5
63	8.2	156.8	7.0	186.9	8.5	241.0	8.5	237.9
64	9.2	153.0	5.9	159.1	6.7	184.0	7.0	199.0
65	7.9	147.2	6.0	163.8	5.5	170.3	6.3	178.6
66	8.2	148.7	5.5	146.5	6.6	184.2	5.0	150.9
67	6.6	107.7	5.2	142.7	4.6	127.7	5.3	144.1
68	6.7	112.0	5.6	139.8	5.7	165.3	4.2	110.4
69	5.1	81.2	5.3	136.1	5.3	142.1	4.5	128.1
70	6.4	91.7	4.5	106.1	4.4	134.8	3.9	112.2
Over 70	42.7	611.9	29.5	762.6	29.4	788.6	29.1	749.7
Not Stated	.6	4.4	.3	8.1	1	3.0	0.3	3.4
Total	1,345.4	21,134.5	1,051.6	24,532.4	1,060.4	27,178.7	997.7	26,307.9

Source: Revenue Canada, Taxation "Taxation Statistics" Note Figures may not add due to rounding

TABLE 6.7

RETAIL TRADE BY TYPE OF OUTLET - ALBERTA - 1980-1985 ($ 000,000)

Type of Store	1980	1981	1982	1983	1984	1985
Combination Stores (Grocery & Meat)	1,375.5	1,618.1	1,771.1	1,882.4	1,931.5	2,112.4
Grocery, Confectionery & Sundries Stores	317.4	390.0	418.8	417.2	434.5	518.5
All Other Food Stores	62.5	92.0	94.0	98.5	100.6	113.1
Department Stores	1,335.2	1,521.3	1,504.4	1,528.4	1,521.5	1,597.7
General Merchandise Stores	228.3	238.8	245.2	247.1	255.9	263.7
General Stores	367.0	442.4	586.3	600.1	590.3	577.2
Variety Stores	69.1	72.8	69.6	64.5	64.6	76.5
Motor Vehicle Dealers	2,202.7	2,405.4	1,967.8	1,965.8	2,202.3	2,987.0
Used Car Dealers	11.4	21.0	12.8	16.0	14.2	21.4
Service Stations	513.6	669.7	678.4	719.7	691.5	854.6
Garages	58.5	72.5	62.5	54.9	70.2	82.2
Automotive Parts & Accessories	175.8	220.3	260.0	274.4	282.0	284.2
Men's Clothing Stores	150.3	167.5	160.5	177.4	193.9	188.5
Women's Clothing Stores	167.5	199.0	212.5	221.9	245.3	300.3
Family - Clothing Stores	128.6	149.0	141.3	170.4	185.0	225.7
Specialty Shoe Stores	2.8	5.0	7.2	10.1	11.0	17.0
Family Shoe Stores	69.9	72.9	80.7	87.5	77.3	90.8
Hardware Stores	74.3	77.1	84.2	87.3	85.1	103.7
Household Furniture Stores	130.2	145.5	111.2	118.8	133.7	116.2
Household Appliance Stores	35.9	49.8	62.6	63.9	53.8	63.5
Furniture, T.V., Radio & Appliance Stores	56.1	59.2	49.5	49.2	168.5	171.6
Pharmacies, Patent Medicine & Cosmetic Stores	281.3	342.0	419.9	482.1	522.0	582.9
Book & Stationery Stores	31.2	34.2	38.9	44.3	47.8	69.6
Florists	43.5	48.9	53.5	62.5	65.9	62.5
Jewellery Stores	89.5	101.5	108.5	108.5	101.8	109.3
Sporting Goods & Accessories Stores	133.9	159.9	164.6	154.5	167.6	186.1
Personal Accessories Stores	105.0	115.8	117.5	110.2	129.2	143.6
All Other Stores	1,207.3	1,412.0	1,457.7	1,486.0	1,486.5	1,603.8
Total	**9,410.7**	**10,906.4**	**10,941.3**	**11,303.5**	**11,833.4**	**13,523.5**

Source: Statistics Canada: Retail Trade Cat. No.'s 63005 & 63224

TABLE 6.8

PRINCIPAL STATISTICS - RETAIL & SERVICE TRADE BY CENSUS DIVISIONS - ALBERTA - 1984

Census Divisions	Outlets No.	Employees (Number) Full Time	Employees (Number) Part Time	Payroll $000 000	Receipts $000 000
1					
Retail Trade	494	2,298	1,377	49,584	473,973
Service Trade	263	1,513	963	20,802	74,754
2					
Retail Trade	1,034	4,463	3,007	110,071	916,413
Service Trade	487	2,371	2,208	39,886	153,610
3					
Retail Trade	327	1,026	613	21,436	201,920
Service Trade	170	395	520	6,694	26,388
4					
Retail Trade	118	243	126	4,937	57,232
Service Trade	48	207	101	2,421	11,345
5					
Retail Trade	340	939	541	18,428	187,557
Service Trade	188	554	541	9,724	40,477
6					
Retail Trade	3,329	20,890	17,293	530,135	4,636,032
Service Trade	1,894	15,135	11,200	250,553	882,683
7					
Retail Trade	497	1,359	831	27,557	280,051
Service Trade	245	712	620	10,982	49,168
8					
Retail Trade	842	4,232	2,801	98,212	909,729
Service Trade	388	2,084	1,826	34,115	137,208
9					
Retail Trade	338	1,120	1,023	24,782	206,354
Service Trade	325	3,833	2,234	60,260	207,135
10					
Retail Trade	771	2,785	1,727	61,370	570,100
Service Trade	363	1,347	1,016	20,197	84,771
11					
Retail Trade	4,381	27,459	22,374	687,672	5,746,168
Service Trade	2,279	19,153	13,372	321,195	1,115,356
12					
Retail Trade	658	2,938	1,621	63,530	623,482
Service Trade	347	2,160	1,393	32,442	130,125
13					
Retail Trade	494	1,638	870	31,136	334,346
Service Trade	225	877	538	12,125	46,539
14					
Retail Trade	242	902	420	17,339	170,482
Service Trade	140	771	376	11,435	42,511
15					
Retail Trade	843	3,428	1,758	76,484	756,912
Service Trade	379	2,303	1,532	35,384	149,866

Source: Alberta Bureau of Statistics

TABLE 6.9

CONSUMER PRICE INDEX, ALL ITEMS - CANADA - 1914 - 1985 (1981 = 100)

Year	Index	Year	Index	Year	Index
1914	12.2	1938	15.6	1962	32.0
1915	12.4	1939	15.5	1963	32.6
1916	13.4	1940	16.1	1964	33.2
1917	15.9	1941	17.0	1965	34.0
1918	18.0	1942	17.9	1966	35.2
1919	19.8	1943	18.2	1967	36.5
1920	22.9	1944	18.3	1968	38.0
1921	20.2	1945	18.4	1969	39.7
1922	18.5	1946	19.0	1970	41.0
1923	18.5	1947	20.8	1971	42.2
1924	18.2	1948	23.7	1972	44.2
1925	18.4	1949	24.5	1973	47.6
1926	18.6	1950	25.2	1974	52.8
1927	18.3	1951	27.9	1975	58.5
1928	18.3	1952	28.5	1976	62.9
1929	18.6	1953	28.3	1977	67.9
1930	18.4	1954	28.5	1978	73.9
1931	16.6	1955	28.5	1979	80.7
1932	15.1	1956	28.9	1980	88.9
1933	14.4	1957	29.8	1981	100.0
1934	14.6	1958	30.6	1982	110.8
1935	14.7	1959	31.0	1983	117.2
1936	15.0	1960	31.4	1984	122.3
1937	15.4	1961	31.6	1985	127.2

Source: Statistics Canada - Consumer Prices and Price Indexes - Cat. No. 62-010

TABLE 6.10

CONSUMER PRICE INDEXES FOR CANADA, MAJOR COMPONENTS 1973-1985 (1981=100)

	All Items	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation Reading and Education	Tobacco and Alcohol
1973	47.6	42.4	49.2	56.3	44.3	49.7	56.1	50.6
1974	52.8	49.4	53.5	61.7	48.7	54.0	61.0	53.4
1975	58.5	55.8	58.9	65.4	54.4	60.2	67.3	59.9
1976	62.9	57.3	65.4	69.0	60.3	65.3	71.3	64.2
1977	67.9	62.0	71.5	73.7	64.6	70.2	74.7	68.7
1978	73.9	71.6	76.9	76.5	68.3	75.2	77.6	74.3
1979	80.7	81.0	82.3	83.6	74.9	82.0	82.9	79.6
1980	88.9	89.8	89.0	93.4	84.5	90.2	90.8	88.6
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982	110.8	107.2	112.5	105.6	114.1	110.6	108.7	115.5
1983	117.2	111.2	120.2	109.8	119.8	118.2	115.8	130.0
1984	122.3	117.4	124.7	112.5	124.8	122.8	119.7	140.6
1985	127.2	120.8	129.0	115.6	130.8	127.2	124.5	154.0

Source Statistics Canada - The Consumer Price Index - Cat No 62-001

TABLE 6.11

CONSUMER PRICE INDEX AND MAIN COMPONENTS - EDMONTON AND CALGARY 1973 and 1978-1985 (1981 = 100)

	All Items	Food	Housing	Clothing	Trans-portation	Health and Personal Care	Recreation Education Reading	Tobacco and Alcohol
Edmonton								
1973	47.2	44.5	44.4	52.1	46.4	52.5	55.7	58.3
1978	74.1	73.5	74.4	73.6	71.0	77.1	77.7	78.1
1979	80.7	82.0	80.5	81.5	77.1	82.5	84.2	81.1
1980	88.9	90.1	87.9	92.8	86.0	89.6	91.4	88.5
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982	110.8	107.7	112.7	105.7	112.1	114.3	108.1	116.1
1983	117.2	111.5	118.8	109.1	119.2	122.7	116.1	134.0
1984	120.4	116.6	119.1	111.8	124.0	126.0	119.5	146.4
1985	124.2	121.4	120.5	113.9	129.8	129.6	124.1	157.9
Calgary								
1973	47.2	44.9	44.3	52.9	46.1	51.2	55.6	55.6
1974	73.6	73.1	73.0	74.9	70.4	77.5	78.9	75.6
1978	73.6	73.1	73.0	74.9	70.4	77.5	78.9	75.6
1979	80.0	82.4	78.7	82.6	75.4	84.1	84.1	79.6
1980	88.3	90.4	86.7	92.1	85.2	89.4	91.4	87.9
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982	112.0	106.9	116.1	104.4	113.5	114.3	109.1	114.1
1983	117.1	109.7	119.8	105.6	120.0	124.1	116.7	131.2
1984	120.0	115.2	119.0	107.8	124.9	129.0	119.4	143.9
1985	123.5	120.1	120.0	110.2	131.6	132.4	123.6	154.0

Source Statistics Canada - Consumer Prices & Price Indexes - Cat 62-010

TABLE 6.12

CONSUMER PRICE INDEX FOR REGIONAL CITIES - CANADA - 1971-1985 (1981 = 100)

	St. John's	Halifax	Saint John	Quebec	Montreal	Ottawa	Toronto	Thunder Bay	Winnipeg	Regina	Saskatoon	Edmonton	Calgary	Vancouver
1971	39.3	43.1	41.9	42.8	42.7	43.2	42.5	42.7	42.4	42.7	43.4	41.9	42.3	41.8
1972	41.6	45.2	44.3	44.4	44.6	45.3	44.6	44.6	44.4	44.6	45.4	43.8	44.2	44.1
1973	45.6	48.8	48.0	47.9	47.8	48.9	48.1	47.9	47.4	47.6	48.3	47.2	47.2	47.3
1974	51.5	53.6	53.0	53.3	53.2	54.2	53.2	53.1	52.4	52.1	52.8	52.1	51.9	52.8
1975	57.4	59.0	59.1	58.8	59.0	59.4	58.9	59.1	58.9	57.6	58.8	57.7	57.8	58.6
1976	61.9	63.9	63.3	62.7	63.0	63.9	63.2	64.3	63.9	62.7	63.6	62.3	62.7	64.3
1977	66.6	68.9	68.0	68.2	68.2	69.1	68.1	69.3	69.1	68.8	69.0	68.0	68.0	68.9
1978	71.9	74.2	73.5	73.7	71.9	74.9	73.9	74.9	75.0	75.0	74.4	74.1	73.6	74.3
1979	79.0	80.8	80.4	80.5	80.6	81.6	80.7	81.5	81.8	81.3	81.0	80.7	80.0	80.0
1980	88.2	89.4	88.7	89.2	89.0	89.4	88.9	89.5	90.0	89.5	89.5	88.9	88.3	87.5
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982	110.0	109.6	109.4	112.2	111.6	109.9	111.3	110.4	108.8	109.0	109.0	110.8	112.0	110.5
1983	117.5	116.8	116.8	118.3	117.8	117.3	118.0	117.1	116.1	116.0	115.9	117.2	117.1	116.6
1984	122.7	121.9	122.8	122.7	122.7	123.2	123.7	122.8	120.3	121.1	120.0	120.4	120.0	121.3
1985	127.8	127.3	128.0	128.2	128.1	128.3	128.5	128.2	125.3	125.6	124.2	124.2	123.5	125.2

Source: Statistics Canada - Consumer Prices and Indexes - Cat. No. 62-010

TABLE 7.1

EXPORTS BY COMMODITY GROUP - ALBERTA 1975 - 1980-85 (MILLIONS OF DOLLARS)

	1975	1980	1981	1982	1983	1984	1985
Live Animals	14.9	43.8	49.8	57.5	59.1	128.1	106.1
Food, Feed, Beverages	57.2	137.3	138.9	1,724.0	1,692.5	1,925.9	1,237.1
Crude Materials, inedible	3,811.1	6,151.3	6,566.3	7,104.4	6,880.7	7,426.0	9,316.2
Fabricated Materials, inedible	509.0	1,329.7	1,665.4	1,680.3	1,962.1	2,493.5	2,545.3
End Products, inedible	110.3	227.3	607.1	453.2	277.8	348.4	352.1
Special Transactions, Trade	11.3	82.5	96.4	97.0	36.3	51.1	40.7
Invisible Exports	N.E.	N.E.	429.0	508.1	492.1	N.E.	N.E.
TOTAL	4,513.9	7,971.8	9,920.9	11,624.3	11,409.7	12,373.0	13,597.3

N/E = Not Estimated
* = 1982-1985 export values of wheat, barley, canola and flaxseed were estimated by Alberta Agriculture and included in the Food, Feed, & Beverages figures; comparable estimates have not yet been made for earlier years
Sources: Statistics Canada External Trade Division and Alberta Agriculture

TABLE 7.2

ALBERTA'S EXPORTS* BY REGION (MILLIONS OF DOLLARS)

	1982	1983	1984	1985
United States	8,277	8,103	9,359	10,504
Asia Pacific Rim	1,202	1,242	1,302	1,673
Europe (East & West)	1,120	931	1,026	614
Middle East North Africa	177	211	302	362
Latin America	241	285	302	313
Africa	122	34	81	103
Other	508	595	-	27
	11,647	11,401	12,373	13,597

Source: Statistics Canada External Trade Division and Alberta Agriculture
* includes Alberta Agriculture's export estimates for agriculture commodities like wheat, canola, barley, etc

TABLE 7.3

MAJOR FOREIGN EXPORT MARKETS - ALBERTA - 1980-1985 (MILLIONS OF DOLLARS)

	1980	1981	1982*	1983*	1984*	1985*
U.S.A.	7,134.0	8,340.6	8,275.9	8,103.1	9,359.0	10,504.2
Japan	260.3	302.3	666.9	758.3	735.1	789.3
People's Republic of China	34.4	22.3	235.4	244.2	189.8	302.4
U.S.S.R.	7.4	13.3	597.0	452.8	544.0	258.2
Brazil	47.1	74.1	44.0	146.9	167.6	175.3
Republic of Korea (South)	39.9	39.3	65.4	64.2	112.5	171.9
India	23.3	42.7	33.9	27.7	96.2	107.1
Morocco	22.7	39.0	32.6	11.4	14.4	101.4
Taiwan	37.4	36.7	35.8	67.7	88.2	90.5
Indonesia	7.4	12.7	10.4	23.6	41.5	77.3
Tunisia	32.1	44.1	36.6	31.9	40.6	67.5
South Africa	44.8	47.8	42.4	23.6	42.6	65.2
Australia	34.1	81.8	63.3	34.9	44.9	59.2
Belgium/Luxembourg	29.1	23.8	38.7	42.0	87.8	57.8
United Kingdom	24.2	43.2	96.1	77.2	67.0	53.3
Egypt	.6	3.1	2.6	4.8	32.6	50.7
Cuba	3.3	11.9	8.4	53.1	45.6	50.3
The Netherlands	22.9	33.9	92.2	110.6	108.5	44.4
Algeria	.3	2.6	.5	35.4	48.5	38.6
Italy	14.8	26.8	77.3	48.8	29.5	35.6
Rest of the World	151.7	201.5	684.0	546.3	477.1	497.1
TOTAL EXPORTS	**7,971.8**	**9,443.5**	**11,139.4**	**10,908.5**	12,373.0	13,597.3

* - includes Alberta export value estimates for wheat, barley, canola and flaxseed; no estimated values for earlier years

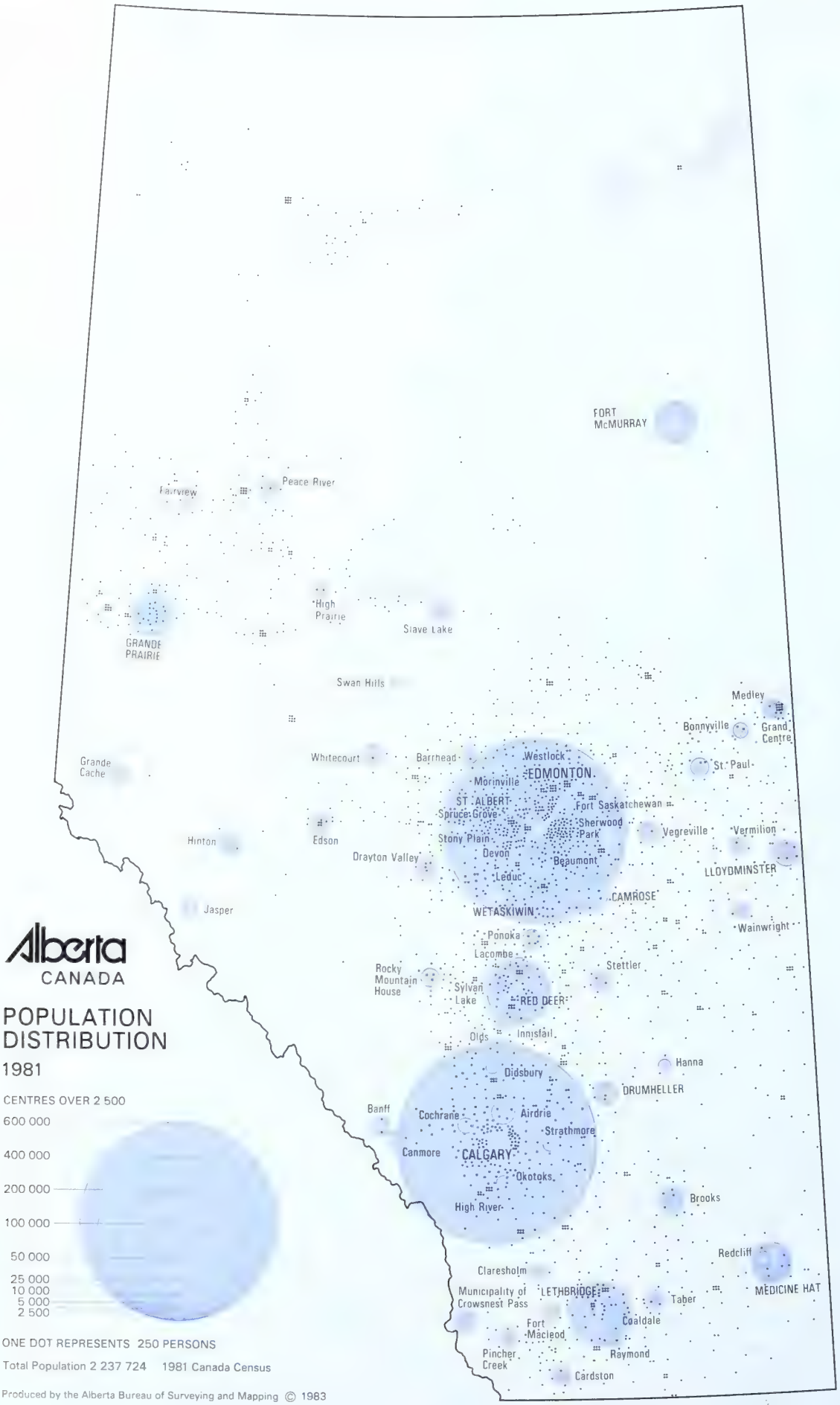
Source: Statistics Canada, External Trade Division; and Alberta Agriculture

TABLE 7.4

MAJOR FOREIGN EXPORT COMMODITIES - ALBERTA - 1980-1985 (MILLIONS OF DOLLARS)

	1980	1981	1982	1983	1984	1985
Crude Petroleum	1,890	1,621	1,767	2,258	3,019	4,401
Natural Gas	3,411	3,950	4,250	3,614	3,433	3,298
Sulphur	349	489	445	353	587	922
Petroleum Products	594	741	852	960	1,135	846
Wheat*	N E	N E	1,111	1,162	1,159	822
Organic Chemicals	89	146	116	267	426	526
Coal & Crude Bitumen	380	367	392	408	273	361
Woodpulp	236	256	231	207	260	240
Canola*	N E	N E	167	152	265	204
Fertilizer & Materials	150	166	165	148	169	182
Synthetic Rubber & Plastic Materials	30	42	42	44	74	171
Inorganic Chemicals	62	89	88	112	148	158
Meat Products	42	55	68	71	83	143
Barley*	N E	N E	455	367	284	123
Canola Oil	8	17	7	24	91	114
Oil & Gasfield Equipment	95	405	252	83	96	113
Livestock	43	50	58	59	128	106
Lumber	66	62	49	104	115	104
Total - Major Commodities	7,445	8,456	10,515	10,393	11,745	12,834
TOTAL EXPORTS	7,972	9,921	11,624	11,400	12,373	13,597

N/E = values not estimated for 1980-1981
* = Includes Alberta Agriculture export value estimates for wheat, barley, and canola
Sources: Statistics Canada External Trade Division and Alberta Agriculture


FORT McMURRAY
Peace River
Fairview
High Prairie
Slave Lake
GRANDE PRAIRIE
Swan Hills
Medley
Bonnyville
Grand Centre
Grande Cache
Whitecourt
Barrhead
Westlock
EDMONTON
St. Paul
Morinville
ST. ALBERT
Fort Saskatchewan
Spruce Grove
Sherwood Park
Vegreville
Vermilion
Hinton
Edson
Stony Plain
Drayton Valley
Devon
Beaumont
LLOYDMINSTER
Leduc
CAMROSE
Jasper
WETASKIWIN
Wainwright
Ponoka
Lacombe
Rocky Mountain House
Stettler
Sylvan Lake
RED DEER
Olds
Innisfail
Hanna
Didsbury
DRUMHELLER
Banff
Cochrane
Airdrie
Strathmore
Canmore
CALGARY
Okotoks
Brooks
High River
Redcliff
Claresholm
Municipality of Crowsnest Pass
LETHBRIDGE
MEDICINE HAT
Taber
Coaldale
Fort Macleod
Pincher Creek
Raymond
Cardston
Alberta
CANADA
POPULATION DISTRIBUTION
1981
CENTRES OVER 2 500
600 000
400 000
200 000
100 000
50 000
25 000
10 000
5 000
2 500
ONE DOT REPRESENTS 250 PERSONS
Total Population 2 237 724 1981 Canada Census
Produced by the Alberta Bureau of Surveying and Mapping © 1983

Census Data Definitions

A comprehensive census of Canada and the province is taken during the first year of each decade; the 1986 census will be similar in scope to that of 1981. For practical purposes, it is assumed that socio-economic patterns change so slowly that more frequent censuses cannot be justified

1. Census divisions are arbitrary but convenient groupings of municipalities. An effort has been made to include municipalities of similar general characteristics in each division.
2. Rural areas include all territory lying outside urban areas. All municipal corporations of less than 1,000 population or of a population density of less than 400 per square kilometre are rural. Corporations are reclassified to urban when they no longer meet the above criteria; they revert to rural when they do
3. For census purposes, there are no specified criteria for city, town, or village status: some villages may have greater populations than some towns; some towns may be larger than some cities; some hamlets larger than a city, town or village, may be classified rural. Thus, care must be exercised in interpreting the figures
4. Rural figures are segregated into farm and non-farm in certain tables. Rural farm population includes all persons living in rural areas who are members of the households of farm operators living on their farms for any length of time during the twelve month period prior to the census

 Rural non-farm population includes all persons living in rural areas who are not members of the households of farm operators living on their farms for any length of time during the twelve month period prior to the census
5. Census family refers to a husband and wife (with or without children who have never married, regardless of age), or a lone parent of any marital status, with one or more children who have never married, regardless of age, living in the same dwelling. For census purposes, persons living in a common-law type of arrangement are considered as now married, regardless of their legal marital status
6. A private household includes a person, or group of persons not necessarily united by blood ties living together, in one dwelling unit. For census purposes, every person is a member of one and only one household
7. Mother tongue refers to the first language learned in childhood and still understood by an individual
8. Ethnic origin refers to the ethnic or cultural group to which the respondent or the respondent's ancestors belonged on first coming to this continent. A person may now have more than one ethnic origin
9. Mobility status refers to the relationship between a person's usual place of residence on census day and his/her usual place of residence five years earlier.
10. Census metropolitan areas refer to the main labour market areas of urbanized cores having 100,000 or more population. They comprise whole municipalities. Since census metropolitan areas are created by Statistics Canada, they may differ from metropolitan areas designated by local authorities
11. Urban areas have population concentrations of 1,000 or more, and population densities of 400 or more per square kilometre
12. Labour force population consists of those persons 15 years of age and over who were employed or unemployed. In a general sense, "employed" is self-explanatory; "unemployed" indicates looking for and available to start work
13. Participation rate refers to the percentage the total labour force (employed plus unemployed) forms of the population 15 years of age and over in the area or category
14. Religion refers to specific religious groups or bodies, denominations, sects, cults, or religious communities. Respondents are not necessarily active members of a denomination.
15. Highest level of schooling refers to the highest grade or year of elementary or secondary school attended, or the highest year of university or other non-university completed by persons 15 years of age and over.
16. Census farm refers to any agricultural holding with sales of agricultural products, during the 12-month period prior to the census, of $250 or more
17. Dwelling, occupied, private refers to a private dwelling in which a person or a group of persons is permanently residing.

A map showing the new boundaries of Alberta census divisions (CD), effective 1986, is reproduced in this publication. As referred to throughout text and tables

- CD8 corresponds with new CD's 8 plus 9;
- CD9 is now CD15;
- CD12 corresponds with new CD's 12 plus 16;
- CD15 corresponds with new CD's 17 plus 18 plus 19

TABLE 8.1

POPULATION BY CENSUS DIVISIONS - ALBERTA 1961, 1971, 1981 and estimated 1985

Census Division	1961 No.	1961 Percent of Total	1971 No.	1971 Percent of Total	1981 No.	1981 Percent of Total	1985 No.	1985 Percent of Total
1	39,140	2.9	39,149	2.4	55,375	2.5	57,240	**2.4**
2	83,306	6.3	86,624	5.3	110,477	4.9	118,410	**5.0**
3	30,967	2.3	30,940	1.9	35,652	1.6	37,910	**1.6**
4	15,020	1.1	12,991	0.8	12,119	0.5	12,890	**0.5**
5	38,115	2.9	34,485	2.1	38,382	1.7	40,420	**1.7**
6	317,989	23.9	447,079	27.5	668,682	29.9	694,670	**29.6**
7	40,837	3.1	38,334	2.4	40,071	1.8	41,810	**1.8**
8	76,533	5.7	85,638	5.3	123,642	5.5	133,090	**5.8**
9	20,274	1.5	19,781	1.2	21,670	1.0	22,480	**1.0**
10	70,177	5.3	65,532	4.0	78,417	3.5	80,780	**3.4**
11	410,679	30.8	552,461	33.9	762,041	34.1	797,030	**34.0**
12	47,310	3.6	54,647	3.4	84,221	3.8	92,290	**3.9**
13	45,431	3.4	43,786	2.7	53,701	2.4	56,410	**2.4**
14	19,282	1.4	21,665	1.3	24,635	1.1	26,660	**1.1**
15	76,884	5.8	94,762	5.8	128,639	5.7	135,720	**5.8**
Total	**1,331,944**	**100.0**	**1,627,874**	**100.0**	**2,237,724**	**100.0**	**2,347,810**	**100.0**

Source: Census of Canada 1981; Alberta Bureau of Statistics for 1985

TABLE 8.2

POPULATION - RURAL AND URBAN, NUMERICAL AND PERCENTAGE DISTRIBUTION - ALBERTA - SELECTED YEARS - 1901 - 1981

Year	Total No.	Rural No.	Percent of Total	Urban No.	Percent of Total
1901	**73,022**	61,171	83.8	11,851	16.2
1911	**374,295**	264,359	70.6	109,936	29.4
1921	**588,454**	411,284	69.9	177,170	30.1
1931	**731,605**	503,723	68.9	227,882	31.1
1941	**796,169**	545,564	68.5	250,605	31.5
1951	**939,501**	509,413	54.2	430,088	45.8
1961	**1,331,944**	480,368	36.1	851,576	63.9
1966	**1,463,203**	455,796	31.2	1,007,407	68.8
1971	**1,627,875**	429,045	26.0	1,198,830	74.0
1976	**1,838,037**	444,551	24.2	1,393,486	75.8
1981	**2,237,724**	510,179	22.8	1,727,545	77.2

Source: Census of Canada 1981

TABLE 8.3

POPULATION OF CITIES, TOWNS AND VILLAGES AND PERCENTAGES OF TOTAL POPULATION - ALBERTA - SELECTED YEARS — 1901-1981

Year	Cities		Towns		Villages	
	No.	%	No.	%	No.	%
1901	4,091	5.60	9,518	13.03	4,924	6.74
1911	90,252	24.11	25,881	6.91	21,529	5.75
1921	147,246	25.02	50,145	8.52	25,513	4.34
1931	194,203	26.54	50,155	6.86	34,150	4.67
1941	215,894	27.12	53,623	6.74	37,069	4.66
1951	342,002	36.40	98,565	10.49	47,621	5.07
1961	636,684	47.80	206,992	15.54	51,223	3.85
1966	829,559	56.69	173,182	11.84	47,970	3.28
1971	975,083	59.90	203,917	12.53	48,613	2.99
1976	1,089,481	59.27	269,827	14.68	49,199	2.68
1981	1,390,825	62.15	325,782	14.56	49,162	2.20

Source: Census of Canada 1981

TABLE 8.4

POPULATION OF INCORPORATED CITIES, TOWNS AND VILLAGES - ALBERTA - SELECTED YEARS - 1931-1983

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Acme	V	5	234	285	275	328	300	457	492
Airdrie	C	6	198	191	267	524	1,089	8,414	10,434
Alberta Beach	SV	13	38	59	79	135	320	485	513
Alix	V	8	241	360	461	631	565	837	837
Alliance	V	7	260	233	281	291	230	208	208
Amisk	V	7	-	-	-	127	134	196	217
Andrew	V	10	115	326	625	601	466	548	569
Argentia Beach	SV	11	-	-	-	-	2	4	3
Arrowwood	V	5	293	251	222	195	166	156	154
Athabasca	T	13	573	578	1,068	1,487	1,765	1,731	1,933
Barnwell	V	2	-	-	-	-	-	359	373
Barons	V	2	284	233	369	345	237	315	334
Barrhead	T	13	222	399	1,243	2,286	2,803	3,736	3,849
Bashaw	T	10	385	494	603	614	757	875	875
Bassano	T	2	615	582	624	815	861	1,200	1,230
Bawlf	V	10	183	227	236	203	182	350	368

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Beaumont	T	11	-	-	-	-	336	2,638	3,923
Beaverlodge	T	15	211	331	514	897	1,157	1,937	1,937
Beiseker	V	6	230	240	325	360	414	580	648
Bellevue	V	9	-	-	-	1,323	1,242	-	-
Bentley	V	8	233	279	439	588	621	823	874
Berwyn	V	15	-	206	288	347	474	557	674
Betula Beach	SV	11	-	-	-	7	-	-	8
Big Valley	V	7	455	291	307	461	306	360	360
Birchcliff	SV	8	-	-	-	-	-	55	53
Bittern Lake	V	10	47	50	25	76	100	139	153
Black Diamond	T	6	683	890	1,154	1,043	945	1,444	1,450
Blackfalds	T	8	84	113	154	477	904	1,488	1,614
Blackie	V	6	251	223	224	184	168	298	343
Blairmore	T	9	1,629	1,731	1,933	1,980	2,037	-	-
Bon Accord	T	11	-	-	-	-	332	1,376	1,425
Bondiss	SV	13	-	-	-	-	-	-	59
Bonnyville	T	12	362	603	1,139	1,736	2,587	4,454	5,575
Bonnyville Beach	SV	12	-	-	-	-	-	45	63
Botha	V	7	107	111	98	112	99	172	176
Bowden	T	8	233	234	277	437	560	989	971
Bow Island	T	1	314	291	653	1,122	1,159	1,491	1,566
Boyle	V	13	-	-	-	346	460	638	691
Breton	V	11	-	-	-	428	352	552	534
Brooks	T	2	708	888	1,648	2,827	3,986	9,421	9,421
Bruderheim	T	10	280	237	387	299	350	1,136	1,238
Burdett	V	1	121	123	118	229	206	220	281
Calgary	C	6	83,761	88,904	129,060	249,641	403,319	592,743	640,645
Calmar	T	11	-	-	944	700	799	1,003	1,130
Camrose	C	10	2,258	2,598	4,131	6,939	8,673	12,570	12,751
Canmore	T	9	-	-	-	-	1,538	3,484	4,012
Carbon	V	5	355	409	374	371	343	434	438
Cardston	T	3	1,672	1,864	2,487	2,801	2,685	3,267	3,546
Carmangay	V	5	279	229	285	297	230	266	247
Caroline	V	8	-	-	-	321	339	436	431

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Carstairs	T	6	387	371	468	665	884	1,587	1,725
Castle Island	SV	13	-	-	-	-	-	5	5
Castor	T	7	634	625	798	1,025	1,166	1,123	1,123
Cayley	V	6	127	133	139	146	122	194	232
Cereal	V	4	185	142	135	195	220	249	258
Champion	V	5	310	320	378	419	335	339	380
Chauvin	V	7	269	343	340	395	349	298	371
Chestermere Lake	SV	6	-	-	-	-	-	487	578
Chinook	V	4	176	142	116	114	59	-	-
Chipman	V	10	284	240	180	174	181	266	281
Claresholm	T	3	1,156	1,265	1,608	2,143	2,935	3,493	3,493
Clive	V	8	215	224	241	251	247	364	365
Cluny	V	5	134	138	202	174	86	92	111
Clyde	V	13	186	160	219	259	233	364	406
Coaldale	T	2	251	290	806	2,592	2,798	4,579	4,853
Coalhurst	V	2	-	-	-	-	-	882	1,273
Cochrane	T	6	293	298	530	857	1,046	3,544	4,044
Cold Lake	T	12	-	-	-	1,307	1,309	2,110	3,059
Coleman	T	9	1,704	1,870	1,961	1,713	1,534	-	-
Consort	V	4	299	265	396	557	659	632	632
Coronation	T	7	738	581	738	864	877	1,309	1,268
Coutts	V	2	-	-	-	469	407	400	400
Cowley	V	3	151	125	119	127	201	304	304
Cremona	V	6	-	-	-	221	186	382	353
Crossfield	T	6	321	409	443	593	638	1,217	1,401
Crowsnest Pass	T	9	-	-	-	-	-	7,306	7,577
Crystal Springs	SV	11	-	-	-	13	8	29	43
Czar	V	7	140	139	123	196	196	148	186
Daysland	T	7	404	438	475	539	593	679	709
Delburne	V	6	193	308	395	450	383	574	564
Delia	V	5	286	315	278	287	241	211	239
Derwent	V	10	107	171	233	281	203	142	150
Devon	T	11	-	-	842	1,418	1,468	3,885	3,931
Dewberry	V	10	-	-	-	179	160	163	210

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Didsbury	T	6	801	892	1,180	1,254	1,821	3,095	3,181
Donalda	V	7	169	206	318	289	232	280	240
Donnelly	V	15	-	-	-	289	274	336	407
Drayton Valley	T	11	-	-	-	3,854	3,900	5,042	4,982
Drumheller	C	5	2,987	2,748	2,601	2,931	5,446	6,508	6,671
Duchess	V	2	114	149	258	218	228	429	417
Eaglesham	V	15	-	-	-	-	218	208	203
Eckville	T	8	169	135	379	580	660	870	842
Edberg	V	10	131	132	188	179	145	150	150
Edgerton	V	7	189	258	309	295	296	387	399
Edmonton	C	11	79,197	93,817	159,631	281,027	438,152	532,246	571,506
Edmonton Beach	SV	11	-	-	-	20	148	280	324
Edson	T	14	1,547	1,499	1,956	3,198	3,818	5,835	7,110
Elk Point	T	12	-	307	453	692	729	1,022	1,289
Elnora	V	8	153	195	211	214	213	249	251
Empress	V	4	314	341	411	405	266	200	254
Entwistle	V	11	189	218	-	411	353	462	468
Evansburg	V	14	-	-	-	452	528	779	769
Fairview	T	15	260	432	929	1,506	2,109	2,869	3,234
Falher	T	15	253	244	575	741	918	1,102	1,188
Ferintosh	V	10	161	169	205	174	127	155	155
Foremost	V	1	-	-	375	561	568	568	617
Forestburg	V	7	291	231	443	677	669	924	973
Fort Assiniboine	V	13	-	-	-	216	173	207	214
Fort Macleod	T	3	1 447	1,912	1,860	2,490	2,715	3,139	3,139
Fort McMurray	C	12	-	-	926	1,186	6,847	31,000	36,810
Fort Saskatchewan	C	11	1,001	903	1,076	2,972	5,726	12,169	12,474
Fox Creek	T	15	-	-	-	-	1,281	1,978	1,978
Frank	V	9	268	204	239	223	224	-	-
Gadsby	V	7	144	141	128	98	47	47	35
Galahad	V	7	150	145	198	231	179	152	176
Ghost Lake	SV	9	-	-	-	-	-	-	42
Gibbons	T	11	-	-	-	192	551	2,276	2,620
Girouxville	V	15	-	-	-	318	347	325	325

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Gleichen	T	5	514	435	430	426	367	381	381
Glendon	V	12	-	-	-	315	354	430	471
Glenwood	V	3	-	-	-	274	200	259	302
Golden Days	SV	11	-	-	-	-	19	30	58
Grand Centre	T	12	-	-	-	1,493	2,088	3,146	3,506
Grande Cache	T	15	-	-	-	-	2,525	4,523	4,624
Grande Prairie	C	15	1,464	1,724	2,664	8,352	13,079	24,263	26,237
Grandview	SV	11	-	-	-	-	16	31	53
Granum	T	3	329	238	327	290	324	399	399
Grassy Lake	V	2	-	-	167	274	196	201	228
Grimshaw	T	15	137	169	564	1,095	1,714	2,316	2,645
Gull Lake	SV	8	-	21	32	40	57	80	80
Hairy Hill	V	10	-	-	205	173	99	72	72
Halfmoon Bay	SV	8	-	-	-	-	-	33	43
Halkirk	V	7	160	118	148	172	136	156	160
Hanna	T	4	1,490	1,622	2,027	2,645	2,545	2,806	3,036
Hardisty	T	7	428	457	536	582	594	641	600
Hay Lakes	V	10	125	154	231	233	211	302	318
Heisler	V	7	125	-	-	214	199	212	212
High Level	T	15	-	-	-	-	1,614	2,194	3,003
High Prairie	T	15	-	-	1,141	1,756	2,354	2,506	2,580
High River	T	6	1,459	1,430	1,888	2,276	2,676	4,792	5,114
Hill Spring	V	3	-	-	-	243	213	200	251
Hines Creek	V	15	-	-	-	398	438	575	529
Hinton	T	14	-	-	-	3,529	4,911	8,342	8,904
Holden	V	10	230	361	504	556	448	430	430
Horseshoe Bay	SV	12	-	-	-	-	-	-	13
Hughenden	V	7	191	164	218	294	267	267	263
Hussar	V	5	151	116	120	213	170	175	173
Hythe	V	15	278	247	342	449	487	639	688
Innisfail	T	8	1,024	1,223	1,417	2,270	2,474	5,247	5,600
Innisfree	V	10	227	253	287	291	252	255	255
Irma	V	7	196	273	369	425	423	474	475
Irricana	V	6	161	172	180	167	139	558	726

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Irvine	T	1	234	240	224	240	194	360	360
Island Lake	SV	13	-	-	-	12	20	43	81
Island Lake South	SV	13	-	-	-	-	-	-	42
Itaska Beach	SV	11	-	-	-	2	-	8	6
Jarvis Bay	SV	8	-	-	-	-	-	-	55
Kapasiwin	SV	11	-	-	-	2	-	22	4
Killam	T	7	326	347	465	552	851	1,005	1,001
Kinuso	V	15	-	-	238	323	267	285	285
Kitscoty	V	10	280	234	235	236	320	497	626
Lac La Biche	T	12	313	517	905	1,314	1,791	2,007	2,242
Lacombe	T	8	1,259	1,603	2,277	3,029	3,436	5,591	6,033
Lakeview	SV	11	-	-	15	12	8	13	22
Lamont	T	10	507	438	637	705	899	1,563	1,673
Larkspur	SV	13	-	-	-	-	-	-	7
Lavoy	V	10	151	178	122	131	114	122	134
Leduc	C	11	900	871	1,842	2,356	4,000	12,471	13,214
Legal	V	11	350	462	523	524	563	1,022	1,042
Lethbridge	C	2	13,489	14,612	22,947	35,454	41,217	54,072	60,310
Linden	V	5	-	-	-	-	226	407	461
Lloydminster (part)	C	10	539	572	1,706	2,944	4,738	8,997	10,557
Lomond	V	5	176	129	153	244	165	180	204
Longview	V	6	-	-	-	-	189	301	292
Lougheed	V	7	218	195	186	217	217	226	283
Magrath	T	3	1,224	1,207	1,320	1,338	1,215	1,576	1,576
Ma-Me-O-Beach	SV	11	-	-	98	142	89	82	82
Manning	T	15	-	-	-	896	1,071	1,173	1,262
Mannville	V	10	307	396	528	632	646	788	799
Marwayne	V	10	-	-	-	379	351	500	500
Mayerthorpe	T	13	159	217	472	663	1,036	1,475	1,475
McLennan	T	15	-	-	1,074	1,078	1,090	1,125	1,176
Medicine Hat	C	1	10,300	10,571	16,364	24,484	26,518	40,380	42,182
Mewatha Beach	SV	13	-	-	-	-	-	27	27
Milk River	T	2	350	335	481	801	775	894	894
Millet	T	11	300	325	402	403	456	1,120	1,428

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Milo	V	5	135	129	141	167	117	100	117
Minburn	V	10	119	129	186	164	106	146	143
Mirror	V	8	534	570	635	577	365	507	552
Morinville	T	11	570	580	892	935	1,475	4,657	5,293
Morrin	V	5	149	216	226	316	197	244	267
Mundare	T	10	832	756	596	603	511	604	655
Munson	V	5	164	139	78	82	54	148	148
Myrnam	V	10	131	216	388	441	403	397	423
Nakamun Park	SV	13	-	-	-	-	3	7	11
Nampa	V	15	-	-	-	271	283	334	435
Nanton	T	3	739	718	934	1,054	991	1,641	1,671
New Norway	V	10	142	169	258	263	200	291	276
New Sarepta	V	11	-	-	-	184	202	417	461
Nobleford	V	2	143	111	255	309	401	534	528
Norglenwold	SV	8	-	-	-	-	40	86	113
Okotoks	T	6	760	591	767	1,043	1,247	3,847	5,201
Olds	T	6	1,056	1,337	1,617	2,433	3,376	4,813	5,005
Onoway	V	13	149	156	189	302	496	621	669
Oyen	T	4	401	326	433	780	929	975	1,015
Paradise Valley	V	10	-	-	-	-	144	177	186
Parkland Beach	SV	8	-	-	-	-	-	-	27
Peace River	T	15	864	873	1,672	2,543	5,039	5,907	6,355
Pelican Narrows	SV	12	-	-	-	-	-	29	65
Penhold	T	8	125	183	174	319	452	1,531	1,588
Picture Butte	T	2	-	-	865	978	1,008	1,404	1,553
Pincher Creek	T	3	1,024	994	1,456	2,961	3,227	3,757	3,712
Plamondon	V	12	-	-	-	-	189	259	271
Point Allison	SV	11	-	-	-	6	10	2	3
Poplar Bay	SV	11	-	-	-	-	-	28	41
Ponoka	T	8	836	1,306	2,574	3,938	4,414	5,221	5,476
Provost	T	7	533	518	676	1,022	1,489	1,645	1,779
Radway	V	13	-	-	184	183	170	192	194
Rainbow Lake	T	15	-	-	-	-	355	504	1,008
Raymond	T	2	1,849	2,089	2,279	2,362	2,156	2,837	3,145

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Redcliff	T	1	1,192	1,111	1,538	2,221	2,255	3,876	3,814
Red Deer	C	8	2,662	3,448	7,575	19,612	27,674	46,393	54,192
Redwater	T	13	-	-	1,306	1,135	1,287	1,932	2,197
Rimbey	T	8	304	410	757	1,266	1,450	1,685	2,106
Rochon Sands	SV	7	-	-	-	28	20	39	51
Rockyford	V	5	194	201	246	288	286	329	292
Rocky Mtn. House	T	8	646	800	1,147	2,360	2,968	4,698	5,261
Rosalind	V	10	-	-	-	-	203	197	197
Rosemary	V	2	-	-	-	210	208	328	328
Ross Haven	SV	13	-	-	-	-	21	59	59
Rumsey	V	5	83	90	110	123	95	87	93
Rycroft	V	15	-	-	372	500	461	649	734
Ryley	V	10	236	323	406	469	428	483	544
St. Albert	C	11	825	697	1,129	4,059	11,800	31,996	36,453
St. Paul	T	12	938	1,018	1,407	2,823	4,161	4,884	5,133
Sandy Beach	SV	13	-	-	-	4	22	78	78
Sangudo	V	13	-	173	269	325	360	398	405
Seba Beach	SV	11	41	84	103	113	165	126	124
Sedgewick	T	7	338	320	485	655	730	879	923
Sexsmith	T	15	304	325	331	531	559	1,180	1,345
Silver Beach	SV	11	-	-	-	14	27	19	30
Silver Sands	SV	13	-	-	-	-	2	58	72
Slave Lake	T	15	-	-	-	468	2,052	4,506	5,434
Smoky Lake	T	12	366	430	491	626	881	1,074	1,165
South Baptiste	SV	13	-	-	-	-	-	-	65
South View	SV	13	-	-	-	-	19	35	33
Spirit River	T	15	232	276	533	890	1,091	1,104	1,104
Spruce Grove	C	11	76	-	-	465	3,029	10,326	11,897
Standard	V	5	218	212	237	266	267	379	379
Stavely	T	3	303	273	327	349	351	504	548
Stettler	T	7	1,219	1,295	2,442	3,638	4,168	5,136	5,136
Stirling	V	2	376	437	520	468	436	688	790
Stony Plain	T	11	497	566	878	1,311	1,770	4,839	5,576
Strathmore	T	5	523	560	704	924	1,148	2,986	3,530

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Strome	V	7	172	233	276	311	226	281	281
Sundance Beach	SV	11	-	-	-	-	5	11	14
Sundre	T	6	-	-	337	853	933	1,742	1,750
Sunset Beach	SV	13	-	-	-	-	-	22	36
Sunset Point	SV	13	-	-	-	14	26	51	95
Swan Hills	T	15	-	-	-	643	1,376	2,497	2,497
Sylvan Lake	T	8	416	805	985	1,381	1,597	3,779	3,779
Taber	T	2	1,279	1,331	3,042	3,951	4,765	5,988	6,384
Thorhild	V	13	-	-	248	312	509	576	566
Thorsby	V	11	-	-	385	491	595	737	737
Three Hills	T	5	581	706	1,026	1,491	1,354	1,787	3,539
Tilley	V	2	-	193	259	257	270	345	358
Tofield	T	10	497	551	692	905	924	1,504	1,560
Torrington	V	5	-	-	-	-	118	189	230
Trochu	T	5	506	480	630	671	739	880	880
Turner Valley	T	6	656	676	719	702	766	1,311	1,298
Two Hills	T	10	149	210	525	826	979	1,193	1,330
Val Quentin	SV	13	-	-	-	-	41	99	107
Valleyview	T	15	-	-	-	1,077	1,708	2,061	2,232
Vauxhall	T	2	-	-	393	942	1,016	1,049	1,076
Vegreville	T	10	1,659	1,696	2,223	2,908	3,691	5,251	5,251
Vermilion	T	10	1,270	1,408	1,982	2,449	2,915	3,766	3,818
Veteran	V	4	180	190	206	239	267	314	318
Viking	T	10	492	491	683	1,043	1,178	1,232	1,238
Vilna	V	12	151	311	378	400	303	345	353
Vulcan	T	5	803	732	1,040	1,310	1,384	1,489	1,507
Wabamun	V	11	-	-	-	-	-	662	705
Wainwright	T	7	1,147	980	1,996	3,351	3,872	4,266	4,643
Waiparous	SV	9	-	-	-	-	-	-	21
Wanham	V	15	-	-	-	251	268	266	238
Warburg	V	11	-	-	-	285	464	501	552
Warner	V	2	342	296	422	472	408	477	485
Warspite	V	12	-	-	-	153	110	96	96
Waskatenau	V	12	-	237	239	305	233	290	286

TABLE 8.4 continued

	City (C), Town (T), Village (V), Summer Village (SV)	Census Division	1931	1941	1951	1961	1971	1981	1986
Wembley	T	15	183	188	251	303	348	1,169	1,227
West Baptiste	SV	13	-	-	-	-	-	-	18
West Cove	SV	13	-	-	-	-	9	49	46
Westlock	T	13	536	590	1,111	1,838	3,246	4,424	4,432
Wetaskiwin	C	11	2,125	2,318	3,824	5,300	6,267	9,597	10,103
Whispering Hills	SV	13	-	-	-	-	-	-	13
Whitecourt	T	14	-	-	-	1,054	3,202	5,585	5,497
White Gull	SV	13	-	-	-	-	-	-	18
Whitesands	SV	7	-	-	-	-	-	2	2
Wildwood	V	14	-	-	405	479	386	441	450
Willingdon	V	10	250	420	281	429	325	366	404
Yellowstone	SV	13	-	-	-	-	14	68	85
Youngstown	V	4	372	188	352	321	305	297	297

Note: Effective January 1, 1979, Bellevue, Blairmore, Coleman and Frank were amalgamated into the new municipality of Crowsnest Pass.

Source: 1986 data are from municipal censuses; other data from Statistics Canada.

TABLE 8.5

POPULATION FOR CENSUS DIVISIONS, URBAN SIZE GROUPS AND RURAL ALBERTA - 1981

		Urban						Rural	
Census Division	Total	Total	500,000 and Over	30,000 to 99,999	10,000 to 29,999	5,000 to 9,999	2,500 to 4,999	1,000 to 2,4999	Total
	2,237,724	1,727,545	1,188,300	175,723	80,677	104,401	119,376	59,068	510,179
1	55,375	45,749	-	44,258	-	-	-	1,491	9,626
2	110,477	78,301	-	54,072	-	15,409	7,416	1,404	32,176
3	35,652	16,564	-	-	-	-	13,347	3,217	19,088
4	12,119	2,806	-	-	-	-	2,806	-	9,313
5	38,382	12,770	-	-	-	6,508	2,986	3,276	25,612
6	668,682	627,309	592,743	-	-	8,414	20,068	6,084	41,373
7	40,071	13,479	-	-	-	5,136	4,266	4,077	26,562
8	123,642	74,102	-	46,393	-	16,059	8,477	3,173	49,540
9	21,670	15,553	-	-	-	-	10,961	4,592	6,117
10	78,417	33,320	-	-	21,567	5,251	3,766	2,736	45,097
11	762,041	662,632	595,557	-	34,847	14,639	13,381	4,208	99,409
12	84,221	51,774	-	31,000	-	7,319	9,338	4,117	32,447
13	53,701	16,948	-	-	-	5,582	8,160	3,206	36,753
14	24,635	14,177	-	-	-	14,177	-	-	10,458
15	128,639	62,061	-	-	24,263	5,907	14,404	17,487	66,578

Source Census of Canada 1981

TABLE 8.6

POPULATION BY MOTHER TONGUE, BY CENSUS DIVISIONS AND CITIES OVER 10,000 - ALBERTA - 1981

Census Division	Total	English	French	German	Indian & Eskimo	Italian	Netherlands & Flemish	Polish	Ukrainian	Other*
1	**55,375**	45,395	645	6,845	15	120	555	140	390	1,270
2	**110,475**	89,615	970	7,225	335	650	2,860	810	1,440	6,570
3	**35,665**	28,335	290	2,075	3,435	45	495	80	135	765
4	**12,115**	10,610	75	950	5	10	30	80	145	210
5	**38,380**	32,220	400	2,780	1,085	90	395	80	360	970
6	**668,680**	560,545	13,820	20,790	1,180	6,940	6,175	2,805	7,495	48,930
7	**40,070**	35,470	505	2,275	15	25	170	105	430	1,075
8	**123,640**	110,235	1,690	3,185	1,870	170	1,445	210	990	3,845
9	**21,670**	17,110	530	570	1,205	400	165	275	330	1,085
10	**78,415**	60,175	905	3,125	320	55	330	625	10,310	2,570
11	**762,040**	598,000	24,700	29,755	3,095	7,340	7,325	6,045	33,585	52,195
12	**84,220**	61,600	7,640	1,020	5,250	105	295	535	5,410	2,365

TABLE 8.6 continued

Census Division	Total	English	French	German	Indian & Eskimo	Italian	Netherlands & Flemish	Polish	Ukrainian	Other*
13	53,700	42,960	1,685	2,910	470	45	525	610	3,385	1,110
14	24,635	21,055	880	790	275	70	200	75	710	580
15	128,640	97,225	7,410	7,175	9,010	110	1,015	590	3,010	3,095
Alberta	**2,237,725**	**1,810,545**	**62,145**	**91,480**	**27,560**	**16,180**	**21,990**	**13,065**	**68,130**	**126,630**
Calgary	592,745	492,175	13,075	17,895	720	6,680	5,370	2,670	7,000	47,160
Edmonton	532,245	402,560	17,210	19,515	1,660	6,930	5,075	5,095	27,160	47,040
Grande Prairie	24,265	20,895	865	695	175	50	135	145	450	855
Lethbridge	54,075	44,590	560	2,010	130	530	910	585	960	3,800
Medicine Hat	40,380	33,105	495	4,970	5	105	235	115	325	1,025
Red Deer	46,395	41,860	790	1,000	35	85	485	60	430	1,650
St. Albert	31,995	27,170	1,520	845	40	85	380	145	660	1,150

Source: Census of Canada 1981

* Includes Not Stated

TABLE 8.7

POPULATION BY RELIGIOUS DENOMINATION FOR CENSUS DIVISIONS - ALBERTA - 1981

Census Division	Total	Catholic	United Church	Anglican	Other Protestant	Eastern Orthodox	Jewish	No Preference	Eastern Non-Christian	Other
1	54,730	15,080	12,865	4,045	17,405	275	125	4,745	185	10
2	109,365	25,625	25,355	7,085	39,595	800	170	8,725	1,905	95
3	35,050	7,220	7,650	2,840	14,730	80	0	2,390	125	15
4	11,885	1,870	5,280	905	3,070	85	10	660	5	0
5	37,520	7,525	11,255	3,670	11,800	115	0	3,015	105	35
6	662,520	164,725	160,350	74,455	141,385	7,425	5,710	90,925	16,705	840
7	39,585	8,510	15,010	2,595	10,570	120	35	2,615	105	25
8	120,615	21,380	35,520	10,240	38,665	400	105	13,645	515	145
9	21,475	6,545	5,600	2,645	2,825	340	70	3,300	130	30
10	76,870	22,005	20,060	5,110	18,680	5,580	25	5,180	215	20
11	755,045	229,780	164,145	64,075	155,105	25,915	4,290	94,255	16,440	1,040
12	83,810	37,695	15,345	7,355	11,820	4,135	20	6,355	965	125
13	53,010	14,695	15,355	3,875	11,640	2,005	0	5,330	95	20
14	24,550	6,520	6,435	2,265	5,135	590	20	3,460	95	25
15	127,635	44,740	25,270	11,115	29,810	1,420	75	14,475	605	125
Total	2,213,650	613,930	525,480	202,265	512,255	49,275	10,650	259,065	38,190	2,535

Source: Census of Canada 1981

TABLE 8.8

POPULATION BY ETHNIC ORIGIN FOR CENSUS DIVISION - ALBERTA - 1981

Census Division	Total	British	French	Dutch (Nether-lands)	German	Italian	Native Peoples	Polish	Scandi-navian	Ukrainian	Other Single Origins	Multiple Origins
1	54,730	20,755	1,600	1,755	17,120	305	205	565	1,755	995	3,090	6,565
2	109,360	46,085	2,520	7,240	15,405	1,225	1,190	1,955	4,545	2,975	13,455	12,770
3	35,055	16,655	775	1,840	3,925	85	4,320	280	1,425	560	1,705	3,490
4	11,885	6,135	180	255	2,430	25	30	215	705	275	435	1,195
5	37,520	17,380	1,205	1,220	5,875	235	2,095	470	2,120	875	2,260	3,790
6	662,520	328,730	26,660	16,585	56,960	11,800	6,055	8,015	19,015	19,690	87,325	81,690
7	39,585	19,760	1,190	1,010	6,845	55	150	600	3,135	1,240	1,830	3,770
8	120,620	62,940	4,190	4,785	12,770	450	3,690	1,165	6,285	3,335	7,155	13,860
9	21,475	10,365	1,150	500	1,525	915	185	680	480	810	1,980	2,880
10	76,865	28,430	2,190	1,455	8,935	115	720	2,165	6,105	14,460	3,635	8,655
11	755,045	296,465	43,620	20,605	73,630	10,405	13,035	15,950	22,935	69,030	89,385	99,985
12	83,805	30,305	10,760	1,130	3,220	270	11,175	1,595	1,590	9,095	5,245	9,425
13	53,005	20,235	3,275	2,035	7,380	215	1,395	1,660	1,990	5,375	2,680	6,765
14	24,550	10,860	1,805	700	2,460	125	625	395	1,080	1,365	1,595	3,540
15	127,635	47,685	10,750	3,955	14,695	380	15,135	1,955	5,375	6,625	6,705	14,370
Total	2,213,650	962,785	111,865	65,060	233,180	26,605	60,005	37,660	78,560	136,710	228,480	272,735

Source Census of Canada 1981

TABLE 8.9

POPULATION 15 YEARS AND OVER BY SCHOOL ATTENDANCE, SHOWING HIGHEST LEVEL OF SCHOOLING - ALBERTA 1981

	Population 15 Years and Over	Not Attending School	Attending School Full-Time	Attending School Part-Time
Elementary-Secondary School Only	978,620	843,210	111,640	23,770
Less than Grade 5	37,845	37,745	5	100
Grades 5-8	174,795	169,030	4,410	1,355
Grades 9-13	532,675	430,080	90,820	11,780
Secondary (High) School Graduation Certificate	184,780	161,360	15,350	8,075
Trade Certificate or Diploma	48,520	45,005	1,060	2,455
Other Non-University Education Only	385,805	317,580	29,505	38,715
Without Non-University Certificate or Diploma	111,820	82,665	15,780	13,375
With Non-University or Trades Certificate or Diploma	273,980	234,910	13,730	25,345
University	308,195	224,880	44,690	38,625
Without University or Other Non-University Certificate, Diploma or Degree	78,460	46,020	24,645	7,795

TABLE 8.9 continued

	Population 15 Years and Over	Not Attending School	Attending School Full-Time	Attending School Part-Time
With Non-University or Trades Certificate or Diploma	42,725	31,185	4,705	6,835
With University Certificate or Diploma Below Bachelor Level	27,015	22,350	1,530	3,135
With Bachelor's Degree	114,510	88,085	10,885	15,545
With University Certificate or Diploma Above Bachelor Level	13,595	11,005	605	1,980
With Medical Degree	6,000	5,105	555	340
With Masters Degree	20,300	16,090	1,650	2,605
With Earned Doctorate	5,595	5,045	170	385

Source: Census of Canada 1981

TABLE 8.10

POPULATION BY SPECIFIED AGE GROUPS IN CENSUS DIVISIONS - ALBERTA - 1981

	Age Groups											
Census Division	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+	Total
1	4,685	4,345	4,370	5,245	5,885	9,455	5,730	5,050	5,005	2,015	3,590	**55,375**
2	9,745	9,145	9,225	10,890	11,250	18,325	11,645	10,035	9,000	3,775	7,415	**110,450**
3	3,515	8,515	3,350	3,685	3,005	5,065	3,570	3,070	2,955	1,350	2,565	**35,645**
4	1,070	930	1,045	1,195	1,060	1,830	1,200	1,200	1,340	400	840	**12,110**
5	3,350	3,255	3,440	3,680	3,230	6,135	4,160	3,530	3,570	1,495	2,530	**38,375**
6	51,410	46,895	49,260	61,040	87,775	144,525	81,060	62,035	42,865	14,845	26,980	**668,690**
7	3,405	3,225	3,415	4,080	3,400	5,845	4,115	3,875	3,940	1,685	3,090	**40,075**
8	10,815	9,950	10,140	12,440	14,195	22,140	13,620	10,890	9,215	3,590	6,645	**123,640**
9	1,570	1,420	1,375	1,875	3,020	4,740	2,210	1,980	1,675	665	1,145	**21,675**
10	6,435	6,050	6,610	7,590	6,580	11,640	8,230	7,465	7,390	3,505	6,920	**78,415**
11	62,075	56,975	58,710	72,440	95,215	154,290	91,240	70,455	50,890	17,815	31,940	**762,045**
12	8,860	8,600	8,625	8,705	8,965	15,895	9,855	6,125	4,205	1,505	2,885	**84,225**
13	4,640	4,500	5,030	5,255	4,340	8,280	5,845	5,475	4,790	1,855	3,690	**53,700**
14	2,455	2,280	2,325	2,515	2,610	4,655	2,820	2,195	1,415	490	870	**24,630**
15	13,930	13,065	12,645	13,790	13,800	22,720	14,015	10,360	7,045	2,420	4,875	**128,665**
Total Alberta	187,960	174,150	179,565	214,425	264,330	435,540	259,315	203,740	155,300	57,410	105,980	**2,237,715**

Source: Census of Canada 1981

TABLE 8.11

FAMILIES BY NUMBER OF PERSONS FOR CENSUS DIVISIONS AND MUNICIPALITIES OF 5,000 POPULATION AND OVER — ALBERTA - 1981

	Families by Number of Persons							Families		
Census Division	2	3	4	5	6	7	8+	Number	No. of Persons in:	Average No. of Persons in:
1	5,910	3,065	3,535	1,545	430	120	50	14,650	46,730	3.2
2	10,885	5,565	6,525	3,145	1,230	390	270	28,010	92,760	3.3
3	3,100	1,615	1,780	1,055	495	200	155	8,395	29,110	3.5
4	1,105	640	685	390	135	35	15	3,005	9,995	3.3
5	3,610	1,875	2,290	1,165	420	100	75	9,530	31,675	3.3
6	68,130	37,125	41,485	16,855	4,760	1,060	455	169,860	537,655	3.2
7	3,955	2,005	2,480	1,245	430	115	50	10,280	33,895	3.3
8	11,995	6,740	7,695	3,570	1,080	275	165	31,520	102,685	3.3
9	2,280	1,060	1,165	455	120	35	15	5,145	15,835	3.1
10	7,985	4,020	4,740	2,325	875	205	95	20,245	66,080	3.3
11	73,900	42,925	48,045	20,800	6,370	1,380	610	194,035	625,860	3.2
12	6,075	4,260	5,240	2,700	1,105	390	355	20,125	71,940	3.6
13	5,145	2,820	3,355	1,670	630	180	85	13,885	46,270	3.3
14	1,995	1,335	1,685	835	255	60	45	6,210	21,265	3.4
15	9,435	6,360	7,745	4,260	1,690	580	680	30,750	110,685	3.6
Total Alberta	**215,505**	**121,415**	**138,445**	**62,005**	**20,020**	**5,115**	**3,125**	**565,635**	**1,842,435**	**3.3**
Airdrie	770	610	725	230	45	5	5	2,395	7,765	3.2
Brooks	875	495	645	250	80	20	10	2,365	7,700	3.3
Calgary	61,195	33,020	35,940	14,370	4,030	910	385	149,840	470,800	3.1
Camrose	1,415	695	740	295	85	15	10	3,260	10,070	3.1
Crowsnest Pass	795	390	500	185	50	15	10	1,945	6,175	3.2
Drayton Valley	430	305	340	155	35	10	—	1,280	4,205	3.3
Drumheller	745	300	325	160	45	5	5	1,585	4,820	3.0
Edmonton	57,005	30,490	29,460	12,475	3,855	865	300	134,540	418,165	3.1
Edson	495	310	395	190	50	10	—	1,450	4,865	3.3
Fort McMurray	2,125	1,760	2,200	990	340	85	45	7,540	26,265	3.5
Fort Saskatchewan	880	650	1,020	430	115	15	10	3,120	10,800	3.5
Grande Prairie	2,185	1,315	1,555	675	210	40	15	5,990	19,535	3.3
Hinton	625	465	655	290	75	20	10	2,135	7,345	3.4
Innisfail	490	335	345	165	30	10	5	1,380	4,485	3.2
Lacombe	685	280	330	160	60	10	5	1,445	4,645	3.2
Leduc	980	705	985	400	135	20	5	3,225	10,990	3.4

TABLE 8.11 continued

	Families by Number of Persons							Families		
	2	3	4	5	6	7	8+	Number	No. of Persons in:	No. of Persons in:
Lethbridge	6,230	2,930	3,260	1,315	450	100	50	14,330	44,665	3.1
Lloydminster (Alta. Pt.)	820	490	560	235	75	20	5	2,200	7,120	3.2
Medicine Hat	4,720	2,270	2,475	1,020	285	70	30	10,880	33,755	3.1
Peace River	485	320	385	180	65	15	5	1,450	4,880	3.4
Ponoka	685	260	310	120	30	5	—	1,410	4,205	3.0
Red Deer	4,665	2,575	2,750	1,115	285	55	30	11,470	35,950	3.1
Spruce Grove	680	615	950	375	100	20	5	2,740	9,635	3.5
St. Albert	2,005	1,815	2,840	1,200	340	65	30	8,285	29,515	3.6
Stettler	620	255	300	130	40	10	5	1,355	4,165	3.1
Taber	620	315	335	165	75	30	10	1,550	5,110	3.3
Vegreville	690	255	260	135	45	10	5	1,400	4,255	3.0
Wetaskiwin	1,090	490	575	240	85	10	5	2,495	7,795	3.1
Whitecourt	420	325	425	150	50	10	—	1,390	4,695	3.4

Source: Census of Canada 1981

TABLE 8.12

FAMILIES BY FAMILY STRUCTURE, FOR CENSUS DIVISIONS - ALBERTA - 1981

						Total Families		
Census Divison	Total Families	Husband-Wife Families	Lone Parent Families			With Children at Home	Children At Home 18 Years and Over	Children At Home 17 Years and Under
			Total	Male Parent	Female Parent			
1	14,650	13,520	1,130	180	950	9,355	1,275	6,925
2	28,010	25,450	2,555	430	2,130	18,485	2,610	13,270
3	8,395	7,465	930	170	760	5,690	785	4,140
4	3,010	2,795	205	45	160	2,040	335	1,455
5	9,530	8,790	740	170	570	6,310	890	4,595
6	169,865	151,835	18,030	3,045	14,980	111,335	16,750	80,165
7	10,280	9,555	720	160	565	6,710	920	4,890
8	31,520	28,560	2,955	535	2,420	21,030	2,565	15,905
9	5,145	4,660	480	125	355	3,120	440	2,295
10	20,240	18,685	1,555	340	1,215	13,510	1,930	9,490
11	194,030	172,645	21,385	3,465	17,925	131,365	19,975	94,175
12	20,120	18,320	1,805	470	1,340	14,890	1,255	11,765
13	13,880	12,795	1,085	270	815	9,320	1,225	6,980
14	6,210	5,710	500	120	380	4,500	460	3,560
15	30,750	27,920	2,830	705	2,120	22,695	2,230	17,520
Alberta	**565,635**	**508,705**	**56,905**	**10,230**	**46,685**	**379,995**	**53,645**	**277,130**

TABLE 8.13

PRIVATE HOUSEHOLDS BY NUMBER OF PERSONS FOR CENSUS DIVISIONS AND MUNICIPALITIES OF 5,000 POPULATION AND OVER — ALBERTA - 1981

	Households by Number of Persons						Households		
Census Division	1	2	3	4	5	6+	Number	No. of Persons in:	Average No. of Persons in:
1	3,780	6,105	3,275	3,630	1,645	760	19,195	53,480	2.8
2	7,120	11,285	5,960	6,705	3,355	2,270	36,705	106,370	2.9
3	2,175	2,990	1,620	1,765	1,105	1,060	10,715	33,230	3.1
4	850	1,145	675	690	405	215	3,985	11,365	2.9
5	2,365	3,685	1,945	2,310	1,225	740	12,275	35,890	2.9
6	46,605	72,950	42,215	43,665	19,625	9,645	234,705	645,700	2.8
7	2,610	4,020	2,125	2,545	1,300	700	13,295	38,220	2.9
8	7,325	12,345	7,395	7,960	3,875	2,015	40,915	118,875	2.9
9	1,825	2,560	1,225	1,270	555	310	7,740	20,545	2.7
10	5,205	8,165	4,290	4,830	2,465	1,430	26,390	75,360	2.9
11	53,850	77,925	47,120	49,690	23,535	12,175	264,295	746,685	2.8
12	3,450	5,895	4,340	5,340	3,000	2,480	24,510	82,115	3.4
13	3,155	5,140	2,925	3,360	1,820	1,150	17,545	52,315	3.0
14	1,215	2,020	1,430	1,735	895	500	7,790	24,250	3.1
15	5,855	9,415	6,695	7,800	4,640	3,775	38,175	125,955	3.3
Total Alberta	**147,390**	**225,635**	**133,240**	**143,295**	**69,450**	**39,235**	**58,240**	**2,179,350**	**2.9**
Airdrie	170	760	615	760	250	80	2,635	8,335	3.2
Brooks	510	955	580	680	275	140	3,135	9,160	2.9
Calgary	43,480	66,030	37,980	38,095	16,900	8,345	210,830	580,650	2.8
Camrose	1,055	1,495	750	775	320	140	4,530	11,895	2.6
Crowsnest Pass	605	825	390	515	205	95	2,625	7,135	2.7
Drayton Valley	270	475	330	340	185	70	1,675	4,945	3.0
Drumheller	605	795	330	330	175	70	2,305	5,820	2.5
Edmonton	47,150	61,345	34,405	31,095	14,570	7,925	196,495	521,935	2.7
Edson	300	540	340	415	215	90	1,905	5,715	3.0
Fort McMurray	1,145	2,110	1,835	2,275	1,205	710	9,275	30,630	3.3
Fort Saskatchewan	405	890	675	1,020	480	170	3,635	11,750	3.2
Grande Prairie	1,295	2,330	1,550	1,605	815	390	7,990	23,645	3.0
Hinton	305	635	515	660	305	150	2,570	8,255	3.2
Innisfail	370	515	355	355	185	55	1,830	5,145	2.8
Lacombe	435	610	315	325	180	95	1,955	5,400	2.8
Leduc	430	960	720	1,005	440	210	3,790	12,120	3.2

TABLE 8.13 continued

	Households by Number of Persons						Households		
	1	2	3	4	5	6+	Number	No. of Persons in:	Average No. of Persons in:
Lethbridge	4,450	6,550	3,165	3,385	1,430	780	19,760	52,770	2.7
Lloydminster (Alta. Pt.)	565	920	555	600	275	120	3,040	8,625	2.8
Medicine Hat	3,180	4,930	2,460	2,555	1,105	500	14,730	39,390	2.7
Peace River	365	510	340	395	195	110	1,925	5,705	3.0
Ponoka	495	720	290	310	140	50	2,005	5,050	2.5
Red Deer	3,255	5,060	3,025	2,910	1,270	525	16,050	43,850	2.7
Spruce Grove	175	680	630	960	385	165	2,990	10,230	3.4
St. Albert	595	1,985	1,840	2,885	1,265	555	9,125	31,500	3.5
Stettler	430	640	280	320	135	65	1,870	4,910	2.6
Taber	420	615	360	355	185	125	2,050	5,880	2.9
Vegreville	525	705	280	270	135	75	1,995	5,020	2.5
Wetaskiwin	775	1,125	545	550	285	145	3,430	9,210	2.7
Whitecourt	280	435	365	430	180	100	1,790	5,510	3.1

Source: Census of Canada 1981

TABLE 8.14

OCCUPIED PRIVATE DWELLINGS BY TENURE, SHOWING STRUCTURAL TYPE, FOR CENSUS DIVISIONS - ALBERTA - 1981

Census Division	Tenure	Total Occupied Private Dwellings	Single Detached	Apartment Five or More Stories	Other Multiple Dwellings	Double House	Row House	Duplex	Apartment Less Than Five Stories	House Attached To a Non Res. Building	Movable Dwellings
1	Owned -	13,480	12,475	5	340	155	40	70	45	25	660
	Rented -	5,720	1,930	275	3,360	280	480	295	2,285	25	155
2	Owned -	25,560	22,840	10	1,095	625	145	170	105	55	1,615
	Rented -	11,145	4,160	650	6,010	710	1,320	705	3,205	60	330
3	Owned -	8,080	7,300	0	125	35	5	30	25	45	650
	Rented -	2,635	1,635	15	810	105	100	90	480	40	180
4	Owned -	3,090	2,705	0	30	0	0	5	5	10	355
	Rented -	890	625	0	180	25	20	40	90	15	85
5	Owned -	9,010	7,900	0	145	60	10	30	15	30	960
	Rented -	3,265	2,090	5	915	100	95	85	600	40	255
6	Owned -	139,560	116,150	860	18,425	6,960	6,970	2,820	1,590	80	4,135
	Rented -	95,145	18,625	16,440	59,620	6,590	12,010	7,870	32,950	210	455
7	Owned -	10,410	8,925	0	135	20	20	20	20	50	1,350
	Rented -	2,890	1,710	0	980	70	275	80	510	45	190
8	Owned -	27,610	22,265	15	1,335	690	280	220	95	50	3,995
	Rented -	13,300	4,125	410	8,180	740	1,195	670	5,505	70	585
9	Owned -	4,530	3,610	0	390	60	175	85	45	20	520
	Rented -	3,210	1,255	15	1,805	165	270	230	1,105	45	135
10	Owned -	20,285	18,135	5	360	120	30	65	45	105	1,780
	Rented -	6,110	2,840	40	3,005	255	400	235	2,065	50	230
11	Owned -	154,190	131,820	1,130	14,695	3,610	7,935	1,435	1,565	150	6,550
	Rented -	110,100	21,870	16,925	70,525	3,620	14,110	3,340	49,180	270	775
12	Owned -	15,965	12,195	5	1,045	505	365	85	35	55	2,720
	Rented -	8,545	2,445	340	5,040	1,135	1,070	270	2,525	35	720
13	Owned -	13,950	11,325	0	210	65	25	30	30	70	2,420
	Rented -	3,595	1,780	15	1,440	125	115	145	1,010	50	360
14	Owned -	5,625	4,095	0	195	50	80	30	20	20	1,335
	Rented -	2,170	765	25	1,180	50	325	90	695	15	195
15	Owned -	26,865	20,815	0	490	165	105	85	75	70	5,550
	Rented -	11,310	4,920	115	5,080	480	840	440	3,250	70	1,195
Alberta	**Owned -**	**478,215**	**402,570**	**2,025**	**39,020**	**13,120**	**16,175**	**5,175**	**3,710**	**835**	**34,600**
	Rented -	**280,030**	**70,775**	**35,275**	**168,130**	**14,450**	**32,615**	**14,570**	**105,455**	**1,040**	**5,855**

Source Census of Canada 1981

TABLE 8.15

POPULATION BY PLACE OF BIRTH, BY CENSUS DIVISIONS - ALBERTA - 1981

Census Division	Total Pop.	Born in Canada	Born in Alberta	Born in Other Prov.	Born Outside Canada	United States	Central & South America	United King.	Other Europe	Asia	Other
1	54,730	48,360	30,420	17,945	6,365	1,270	50	1,420	3,025	425	180
2	109,365	90,475	65,685	24,795	18,885	3,525	380	3,215	9,600	1,780	380
3	35,050	31,520	26,275	5,240	3,530	1,120	5	785	1,285	245	90
4	11,885	10,935	8,690	2,245	945	370	5	145	380	40	10
5	37,520	33,475	26,285	7,195	4,040	1,315	50	965	1,410	135	165
6	662,520	527,530	282,190	245,340	134,990	13,460	3,355	34,200	46,015	26,240	11,725
7	39,585	35,810	28,595	7,210	3,775	1,215	20	975	1,290	210	60
8	120,620	107,875	75,065	32,805	12,745	2,785	85	3,425	4,900	1,125	430
9	21,470	17,560	10,105	7,455	3,915	470	25	1,180	1,825	290	115
10	76,870	69,725	51,250	18,475	7,145	1,440	25	1,595	3,430	490	165
11	755,040	615,250	408,420	206,835	139,785	11,750	4,140	28,140	57,020	28,615	10,120
12	83,810	74,965	45,845	29,125	8,840	1,055	200	2,130	3,360	1,450	640
13	53,005	46,855	37,860	8,995	6,150	1,165	15	1,205	3,485	215	65
14	24,550	21,895	14,040	7,860	2,655	495	15	535	1,400	105	95
15	127,635	116,590	84,965	31,625	11,045	2,385	390	2,525	4,230	1,095	420
Total	**2,213,655**	**1,848,825**	**1,195,685**	**653,140**	**364,825**	**43,820**	**8,755**	**82,450**	**142,670**	**62,460**	**24,675**

Source: Census of Canada 1981

TABLE 8.16

COMPONENTS OF INTERNATIONAL AND INTERPROVINCIAL MIGRATION - ALBERTA - 1975/76 - 1984/85

	International Migration			Interprovincial Migration			
Year	Immigration	Emigration	Net	In	Out	Net	Total Net Migration
1975/76	15,651	4,800	10,851	76,210	51,588	24,622	**35,473**
1976/77	13,897	7,084	6,813	81,332	46,622	34,710	**41,523**
1977/78	12,062	7,874	4,188	83,270	50,727	32,543	**36,731**
1978/79	8,880	7,475	1,405	86,057	52,631	33,426	**34,831**
1979/80	16,108	6,010	10,098	100,710	59,275	41,435	**51,533**
1980/81	18,837	5,569	13,268	109,383	65,133	44,250	**57,518**
1981/82	20,571	6,698	13,873	100,046	63,484	36,562	**50,873**
1982/83	14,459	7,303	7,156	59,381	71,031	-11,650	**-4,494**
1983/84	10,576	7,173	3,403	63,979	106,763	-42,784	**-39,381**
1984/85*	9,382	6,976	2,406	67,915	95,276	-27,361	**-24,955**

Source: Statistics Canada, Demography Division Interprovincial Migration Cat. No. 91-210

TABLE 8.17

MOVEMENT OF ALBERTA POPULATION 5 YEARS OF AGE AND OVER 1976-1981, BY CENSUS DIVISION

Census Division	Population 5 Years and Over	Non-Movers	Movers					
			Total	From Different Alberta C.D.	From Different Province	From Outside Canada	To Different Alberta C.D.	To Different Province
1	50,005	22,105	27,900	5,910	6,440	740	4,760	2,680
2	99,545	47,265	52,285	10,720	9,710	2,440	10,595	4,430
3	31,525	16,870	14,655	4,300	2,020	425	4,590	1,210
4	10,795	6,555	4,240	1,435	810	85	1,945	310
5	34,160	18,520	15,640	5,670	2,230	405	5,735	1,570
6	610,660	215,585	395,075	33,130	136,030	32,235	38,355	50,165
7	36,155	20,440	15,710	4,505	2,615	445	5,620	1,395
8	109,750	41,855	67,895	17,695	15,545	2,105	10,100	4,885
9	19,895	8,070	11,820	2,375	4,370	615	3,750	3,165
10	70,395	36,530	33,865	11,645	6,375	820	8,560	2,520
11	692,635	270,520	422,115	42,810	108,075	29,440	49,145	49,855
12	74,730	25,805	48,930	9,425	19,650	2,535	9,720	7,315
13	48,345	24,090	24,255	9,615	3,660	635	7,190	1,665
14	22,080	7,820	14,260	3,810	4,165	395	2,955	1,845
15	113,660	47,965	65,695	12,455	15,140	2,155	12,475	6,170
Alberta	**2,024,345**	**810,005**	**1,214,340**	**—**	**336,825**	**75,485**	**—**	**139,180**

Source: Census of Canada 1981

TABLE 8.18

MIGRATION OF PERSONS BETWEEN ALBERTA AND OTHER PROVINCES - SPECIFIED PERIODS - 1961-1985

From Alberta To: Years	Newfound-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat-chewan	British Columbia	Yukon & N.W.T.	Total
1961-66	1,201	598	3,568	2,315	9,335	44,392	21,364	40,553	102,376	6,344	**232,047**
1966-71	1,100	679	4,487	2,591	8,410	47,894	20,686	38,813	124,329	8,456	**257,446**
1971-76	2,020	1,101	7,153	4,003	8,665	51,059	24,150	45,841	138,473	11,070	**293,535**
1971-72	560	227	1,281	714	1,821	11,129	4,290	7,146	27,909	2,529	**57,606**
1972-73	310	222	1,516	775	1,624	9,415	4,414	7,245	29,256	2,406	**57,185**
1973-74	461	183	1,442	806	2,160	12,197	6,332	10,964	33,502	1,801	**69,847**
1974-75	311	245	1,568	856	1,532	8,703	4,415	10,667	26,541	2,469	**57,309**
1975-76	378	223	1,344	852	1,527	9,615	4,699	9,820	21,265	1,865	**51,588**
1976-77	352	274	1,129	791	1,488	9,543	3,955	8,603	18,793	1,694	**46,622**
1977-78	572	370	1,799	509	1,467	11,286	3,919	7,654	21,191	1,660	**50,727**
1978-79	810	342	1,728	923	1,658	11,307	3,284	7,096	24,076	1,407	**52,631**

TABLE 8.18 continued

From Alberta To: Years	Newfound-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat-chewan	British Columbia	Yukon & N.W.T.	Total
1979-80	1,021	275	1,659	966	1,605	10,958	3,582	7,276	30,602	1,331	**59,275**
1980-81	1,193	298	2,155	1,296	1,984	13,054	4,355	8,020	31,481	1,297	**65,133**
1981-82	1,463	418	2,862	1,869	2,535	16,535	5,126	8,308	23,053	1,315	**63,484**
1982-83	2,622	773	3,874	2,938	4,347	21,613	5,767	9,110	18,839	1,148	**71,031**
1983-84	1,969	728	5,573	2,885	6,701	34,775	6,743	12,954	32,642	1,793	**106,763**
1984-85*	1,487	562	3,848	2,575	5,445	33,311	5,780	10,607	30,000	1,661	**95,276**
To Alberta From: Years											
1961-66	1,422	885	4,447	3,560	9,601	40,049	27,439	61,681	74,036	6,942	**230,063**
1966-71	1,880	1,076	6,016	4,713	15,165	49,339	35,185	75,448	93,116	7,514	**289,452**
1971-76	3,017	1,638	7,985	5,273	16,218	75,536	39,877	71,261	120,300	11,000	**352,105**
1971-72	321	259	1,366	910	2,682	11,747	6,966	15,982	19,140	1,896	**61,181**
1972-73	338	202	1,285	833	2,961	11,793	7,507	15,457	20,355	2,016	**62,749**
1973-74	820	347	1,531	1,044	3,188	14,970	8,245	16,884	22,784	2,269	**72,082**
1974-75	795	413	1,899	1,236	3,563	17,909	9,091	13,243	29,243	2,500	**79,884**
1975-76	742	417	1,903	1,249	3,824	19,117	8,067	9,793	28,778	2,318	**76,210**
1976-77	1,473	531	3,364	1,732	5,626	22,419	7,813	9,632	25,756	2,986	**81,332**
1977-78	2,488	503	3,225	2,034	8,068	25,536	7,345	10,594	20,884	2,593	**83,270**
1978-79	2,280	462	3,270	2,276	6,271	27,171	9,359	11,109	21,238	2,621	**86,057**
1979-80	2,787	712	4,130	3,232	7,397	37,019	10,932	11,630	20,679	2,192	**100,710**
1980-81	3,362	1,199	5,330	4,460	8,048	43,584	9,973	12,259	19,393	1,775	**109,383**
1981-82	4,567	1,172	4,699	4,030	9,135	34,070	7,804	10,622	22,064	1,883	**100,046**
1982-83	1,547	441	2,240	1,413	5,777	16,438	4,202	6,912	18,911	1,500	**59,381**
1983-84	1,724	491	2,161	1,644	3,798	17,071	5,135	8,941	21,462	1,552	**63,979**
1984-85*	1,399	362	2,789	1,993	2,503	16,425	4,707	10,102	26,122	1,513	**67,915**

Source: Statistics Canada, Demography Division Interprovincial Migration Cat. No. 91-210

*Premilinary

TABLE 8.19

POPULATION, BIRTHS, MARRIAGES, DEATHS, AND RATES - ALBERTA - 1942-1985

Year	Population	Births	Birth Rate Per 1,000 Population	No. of Marriages	Marriage Rate Per 1,000 Population	No. of Deaths	Death Rate Per 1,000 Population	Rate of Natural Increase Per 1,000 Population
1942	776,000	18,317	23.6	9,034	11.6	6,091	7.8	15.8
1943	785,000	19,290	24.6	7,771	9.9	6,524	8.3	16.3
1944	808,000	19,372	24.0	7,299	9.0	6,320	7.8	16.2
1945	808,000	19,939	24.7	7,310	9.0	6,454	8.0	16.7
1946	803,000	22,184	27.6	9,478	11.8	6,601	8.2	19.4
1947	825,000	24,631	29.9	8,797	10.7	6,543	7.9	22.0
1948	854,000	24,075	28.2	8,844	10.4	6,987	8.2	20.0
1949	885,000	24,935	28.2	9,037	10.2	7,083	8.0	20.2
1950	913,000	25,625	28.1	9,294	10.2	6,856	7.5	20.6
1951	939,000	27,003	28.8	9,305	9.9	7,167	7.6	21.2
1952	973,000	29,105	29.9	9,514	9.8	7,345	7.5	22.4
1953	1,012,000	31,376	31.0	10,126	10.0	7,646	7.6	23.4
1954	1,057,000	33,593	31.8	9,960	9.4	7,520	7.1	24.7
1955	1,091,000	34,357	31.5	9,844	9.0	7,956	7.3	24.2
1956	1,123,000	34,951	31.1	9,965	8.9	7,786	6.9	24.2
1957	1,164,000	35,718	30.7	10,117	8.7	8,255	7.1	23.6
1958	1,206,000	36,842	30.5	10,186	8.4	8,237	6.8	23.7
1959	1,248,000	38,080	30.5	10,402	8.3	8,481	6.8	23.7
1960	1,291,000	39,009	30.2	10,482	8.1	8,888	6.9	23.3
1961	1,332,000	38,914	29.2	10,474	7.9	8,863	6.7	22.5
1962	1,369,000	38,804	28.3	10,423	7.6	9,264	6.8	21.5
1963	1,403,000	38,467	27.4	10,163	7.2	9,444	6.7	20.7
1964	1,429,000	36,169	25.3	10,634	7.4	9,482	6.6	18.7
1965	1,450,000	32,664	22.5	11,209	7.7	9,534	6.6	15.9
1966	1,463,00	30,592	20.9	11,879	8.1	9,677	6.6	14.3
1967	1,490,000	30,691	20.6	12,903	8.7	9,523	6.4	14.2
1968	1,524,000	30,149	19.8	13,640	8.9	9,963	6.5	13.3
1969	1,559,000	30,855	19.8	14,846	9.5	9,921	6.4	13.4
1970	1,595,000	31,967	20.0	15,285	9.6	10,112	6.3	13.7
1971	1,628,000	30,545	18.8	15,614	9.6	10,525	6.5	12.3
1972	1,657,000	29,282	17.7	16,345	9.9	10,699	6.5	11.2
1973	1,690,000	29,288	17.4	16,280	9.7	10,763	6.4	11.0
1974	1,722,000	29,813	17.4	16,691	9.7	11,252	6.6	10.8
1975	1,778,000	31,624	17.8	17,520	9.9	11,397	6.4	11.4
1976	1,838,000	33,063	18.0	17,752	9.7	11,584	6.3	11.7

TABLE 8.19 continued

Year	Population	Births	Birth Rate Per 1,000 Population	No. of Marriages	Marriage Rate Per 1,000 Population	No. of Deaths	Death Rate Per 1,000 Population	Rate of Natural Increase Per 1,000 Population
1977	1,913,000	34,400	18.0	18,000	9.4	11,600	6.1	11.9
1978	1,983,000	35,396	17.8	18,277	9.2	11,944	6.0	11.8
1979	2,053,000	37,003	18.0	18,999	9.3	12,109	5.9	12.1
1980	2,141,000	39,749	18.6	20,818	9.7	12,710	5.9	12.6
1981	2,237,000	42,638	19.1	21,781	9.7	12,823	5.7	13.3
1982	2,318,000	45,036	19.4	22,312	9.6	12,968	5.6	13.8
1983	2,347,000	45,555	19.4	21,172	9.0	12,588	5.4	14.0
1984	2,342,000	44,105	18.8	20,052	8.6	12,730	5.4	13.4
1985*	2,348,000	43,489	18.5	20,790	8.9	13,299	5.7	12.8

Source: Statistics Canada, Vital Statistics Cat. No.'s 84-001, 84-204 and 91-202 *Preliminary

Manpower and Training

TABLE 8.20

APPRENTICES REGISTERED, ATTENDING SCHOOL, RECEIVING CERTIFICATION, AND EXAMINATIONS WRITTEN - ALBERTA - 1971 AND 1976-1985

Apprentices	1971	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Registered	8,716	16,059	18,327	19,805	22,525	25,699	28,157	27,953	24,188	19,976	19,017
Attending School in Block of Formal Training	8,599	12,932	14,359	15,992	17,485	18,859	20,002	21,975	20,547	16,714	13,180
Certificates issued a) Indicating Completion of Apprenticeship	3,090	2,359	2,800	3,412	3,605	4,175	4,360	5,184	5,308	5,164	4,655
b) Indicating Permanent Journeyman Status	1,986	3,741	6,210	6,856	7,477	10,661	9,887	13,238	17,500*	10,287	8,448
Examinations Written	19,844	31,825	33,367	36,305	39,864	44,010	49,741	52,475	47,091	40,827	33,254

Source: Alberta Manpower

*Includes 3000 replacement certificates to electricians and gasfitters

TABLE 8.21

APPRENTICES REGISTERED AND CERTIFICATED, EDUCATIONAL REQUIREMENTS, AND LENGTH OF APPRENTICESHIP TRAINING PERIOD - ALBERTA - 1985

	Registered Apprentices	Completed Apprenticeship	Journeyman Certificates Issued	Minimum Education Grade	Length of Apprenticeship-Years or Periods
Agricultural Mechanic	47	20	23	Com. Ent.	2
Appliance Serviceman	48	7	16	10	3
Auto Body Mechanic	796	142	216	9	3
Baker	136	28	41	9	3

TABLE 8.21 continued

	Registered Apprentices	Completed Apprenticeship	Journeyman Certificates Issued	Minimum Education Grade	Length of Apprenticeship-Years or Periods
Barber	121	4	43	10	2
Beautician	628	94	601	10	2
Boilermaker	102	21	44	Com. Ent.	3
Bricklayer	93	22	29	9	3
Cabinetmaker	270	41	53	9	4
Carpenter	1,725	438	591	9	4
Cement Finisher	19	-	41	9	3
Communication Electrician	277	383	435	11	4
Cook	576	88	241	9	3
Electrical Rewind Mechanic	49	11	21	10	4
Electrician	2,512	743	844	Math 20	4
Electronic Technician	143	19	48	10	4
Elevator Constructor	-	-	10	-	-
Floorcovering Mechanic	28	6	10	9	3
Gasfitter	104	31	447	9	3
Glassworker	124	21	25	9	4
Heavy Duty Mechanic	1,331	430	570	Com. Ent.	4
Heavy Equipment Operator	5	2	138	9	3
Instrument Mechanic	516	103	141	Com. Ent.	4
Insulator	421	58	81	9	4
Ironworker	93	24	38	Com. Ent.	3
Landscape Gardener	137	-	410	9	4
Lather - Interior Systems Mech.	47	11	30	9	3
Machinist	334	85	119	9	4
Millwright	499	154	277	10	4
Motor Mechanic	2,480	441	601	9	4
Motorcyle Mechanic	-	-	-	9	4
Painter and Decorator	160	36	90	9	3
Partsman	494	93	171	10	3
Plasterer		-	2	-	-
Plumber	1,279	288	332	Com. Ent.	4
Power Lineman	106	47	72	10	3
Power System Electrician	20	11	26	10	4
Printing and Graphic Arts	295	4	33	9	4
Recreation Vehicle Mechanic	47	1	63	9	2

TABLE 8.21 continued

	Registered Apprentices	Completed Apprenticeship	Journeyman Certificates Issued	Minimum Education Grade	Length of Apprenticeship-Years or Periods
Refrigeration Mechanic	196	48	60	9	4
Roofer	51	11	16	9	3
Saw Filer	4	-	26	9	4
Sheet Metal Mechanic	684	131	139	Com. Ent.	4
Sprinkler Fitter	97	18	20	Com. Ent.	4
Steamfitter/Pipefitter	265	57	254	Com. Ent.	4
Steel Fabricator	45	16	14	9	3
Tilesetter	35	8	11	9	3
Tool and Die Maker	-	-	109		
Transport Refrigeration Mechanic	25	7	9	Com. Ent.	3
Water Well Driller	55	13	24	9	2
Welder	1,607	444	790	9	3
Total	19,017	-	8,448	-	-

TABLE 8.22

LABOUR FORCE - MALE AND FEMALE AND PARTICIPATION RATES BY AGE GROUP - ALBERTA - 1951, 1961, 1971, 1981 AND 1986 (AS OF JUNE 1)

	Labour Force	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
1951	Male (000)	20	36	72	63	49	36	16	**291**
	Participation rate %	53.7	94.2	97.1	97.1	95.2	86.5	39.2	**84.0**
	Female (000)	10	16	15	11	6	4	1	**63**
	Participation rate %	27.8	42.7	20.0	17.8	15.8	11.6	4.3	**20.4**
1961	Male (000)	23	40	96	84	63	40	15	**362**
	Participation rate %	46.0	90.8	95.5	95.9	93.8	84.1	29.8	**80.7**
	Female (000)	15	21	28	29	23	10	2	**128**
	Participation rate %	30.3	46.8	30.0	34.4	37.0	25.4	5.2	**30.8**
1971	Male (000)	48	64	106	96	76	50	15	**455**
	Participation rate %	57.9	91.1	95.4	95.4	93.2	83.6	25.9	**80.5**
	Female (000)	33	45	50	46	42	23	5	**244**
	Participation rate %	41.9	63.7	46.4	49.6	51.6	39.2	8.0	**44.4**
1981	Male (000)	67	128	220	130	100	62	16	**724**
	Participation rate %	61.7	94.1	97.0	97.1	95.1	82.7	23.3	**84.7**
	Female (000)	57	99	137	85	60	33	6	**476**
	Participation rate %	54.3	78.0	66.1	68.0	61.9	41.5	7.4	**58.2**

TABLE 8.22 continued

LABOUR FORCE - MALE AND FEMALE AND PARTICIPATION RATES BY AGE GROUP - ALBERTA - 1951, 1961, 1971, 1981 AND 1986 (AS OF JUNE 1)

1986	Male (000)	60	98	238	161	104	65	12	**739**
	Participation rate %	64.3	91.1	96.7	96.8	95.6	75.2	15.6	**83.4**
	Female (000)	57	86	175	128	69	36	5	**556**
	Participation rate %	64.6	80.2	74.1	79.6	65.6	40.8	4.9	**63.2**

Note: This historical table is included mainly to show the change in the female participation rate in the thirty year period. The 1986 figures have been added to indicate the trend in recent years
Source: Census of Canada 1951-1981

TABLE 8.23

LABOUR FORCE - MALE AND FEMALE AND PARTICIPATION RATES BY AGE GROUP - ALBERTA - SPECIFIED YEARS 1951, 1961, 1971, 1981 AND 1986 (ANNUAL AVERAGES)

	Labour Force	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
1979	Male (000)	73	106	181	115	95	58	14	**642**
	Participation rate %	68.7	91.1	97.0	98.1	96.0	81.0	21.6	**84.3**
	Female (000)	61	78	107	74	54	29	-	**406**
	Participation rate %	58.9	70.9	60.8	66.1	58.3	39.1	-	**54.8**
1981	Male (000)	75	122	218	129	101	60	13	**718**
	Participation rate %	69.6	91.5	97.4	97.9	96.5	80.0	19.1	**85.1**
	Female (000)	63	96	140	84	61	31	4	**480**
	Participation rate %	61.8	76.6	67.9	67.4	63.1	39.5	4.5	**59.0**
1983	Male (000)	62	115	236	145	102	63	14	**737**
	Participation rate %	60.6	88.2	95.9	96.9	94.9	77.7	19.3	**83.0**
	Female (000)	52	97	155	102	67	35	5	**513**
	Participation rate %	53.7	76.8	68.8	71.9	67.2	42.2	5.5	**59.8**
1984	Male (000)	59	107	234	150	102	66	13	**731**
	Participation rate %	60.7	88.0	95.1	96.5	94.9	79.0	17.6	**82.7**
	Female (000)	49	91	164	110	70	36	3	**523**
	Participation rate %	53.8	77.2	72.4	74.6	69.4	41.9	3.7	**61.2**
1985	Male (000)	58	96	234	156	101	64	12	**721**
	Participation rate %	62.5	86.7	95.9	97.5	94.5	75.1	16.5	**82.5**
	Female (000)	49	85	170	115	69	35	4	**527**
	Participation rate %	55.5	76.5	73.7	74.3	68.0	40.9	4.6	**61.0**

Source: Statistics Canada Labour Force Annual Averages Cat. No. 71-529

TABLE 8.24

POPULATION* OF WORKING AGE, IN AND NOT IN LABOUR FORCE, EMPLOYED AND UNEMPLOYED, AND PARTICIPATION RATES - MALE AND FEMALE - ALBERTA - 1979-1985 SPECIFIED YEARS (FIGURES IN THOUSANDS UNLESS OTHERWISE INDICATED)

	1979	1981	1983	1984	1985
Population 15 years+					
Male	762	844	888	882	873
Female	741	814	858	858	864
Total	**1,503**	**1,657**	**1,745**	**1,739**	**1,738**
Labour Force					
Male	642	718	737	729	721
Female	406	480	513	525	528
Total	**1,048**	**1,198**	**1,249**	**1,254**	**1,249**
Not in Labour Force					
Male	120	126	151	153	152
Female	335	334	345	333	336
Total	**455**	**460**	**496**	**485**	**489**
Employed					
Male	621	693	653	645	649
Female	386	459	462	469	475
Total	**1,007**	**1,152**	**1,115**	**1,114**	**1,124**
Unemployed					
Male	21	25	84	84	72
Female	20	21	51	56	54
Total	**41**	**46**	**134**	**140**	**126**
Unemployment Rate (%)					
Male	3.3	3.5	11.4	11.6	10.0
Female	4.9	4.3	9.9	10.6	10.2
Total	**3.9**	**3.8**	**10.8**	**11.2**	**10.1**
Participation Rate (%)					
Male	84.3	85.1	83.0	82.7	82.5
Female	54.8	59.0	59.8	61.2	61.1
Total	**69.7**	**72.3**	**71.6**	**72.1**	**71.9**

* Figures may not add due to rounding

Source: Statistics Canada Labour Force Annual Averages Cat. No 71-529

TABLE 8.25

EMPLOYED LABOUR FORCE BY INDUSTRY, ANNUAL AVERAGES - ALBERTA 1979-1985 (THOUSANDS)

	1979	1980	1981	1982	1983	1984	1985
Industries							
Agriculture	85	85	88	77	80	88	84
Other Primary	59	66	74	69	68	74	72
Manufacturing	85	102	106	95	86	88	87
Construction	111	104	122	112	88	71	68
Transportation, Communications & Other Utilities	93	97	96	95	95	95	92
Trade	183	195	203	200	201	196	205
Finance, Insurance, & Real Estate	54	59	60	68	61	58	60
Service	277	301	323	332	351	358	367
Public Administration	61	70	80	84	84	85	88
Total	1,007	1,078	1,152	1,132	1,115	1,114	1,123

Source Statistics Canada Labour Force Annual Averages Cat No 71-529

TABLE 8.26

EMPLOYED LABOUR FORCE BY OCCUPATION, ANNUAL AVERAGES - ALBERTA 1979-1985 (THOUSANDS)

	1979	1980	1981	1982	1983	1984	1985
Occupational Group							
Managerial Professional	225	240	275	283	291	319	336
Clerical	163	184	194	197	191	188	181
Sales	109	114	119	121	123	102	112
Service	120	129	142	147	155	149	150
Primary	108	110	112	99	101	114	104
Processing	99	111	116	104	95	98	96
Construction	101	95	105	97	82	69	67
Transportation	48	57	50	47	45	44	45
Materials Handling & Other Crafts	36	38	38	36	32	31	32
All Occupations	1,007	1,078	1,152	1,132	1,115	1,114	1,123

Source Statistics Canada Labour Force Annual Averages Cat No 71-529

TABLE 8.27

ENROLMENT IN THE ALBERTA POST-SECONDARY SYSTEM 1975-76 to 1985-86

	University of Alberta Calgary and Lethbridge	Athabasca University & Banff Centre	Public Colleges	Private Colleges	Technical Institutes	Vocational Centres and the Alberta Petroleum Industry Training Centre	Schools of Nursing
1975-76	32,022	3,424	8,812	540	8,497	7,552	1,307
1976-77	32,366	3,747	9,254	596,	8,905	9,238	1,176
1977-78	31,827	5,024	10,379	663	9,483	8,891	1,077
1978-79	30,847	6,306	9,530	656	9,990	9,776	1,084
1979-80	30,274	7,052	9,278	790	9,909	9,587	1,062
1980-81	30,852	8,161	9,940	734	10,165	10,637	1,116
1981-82	33,448	9,310	10,927	797	10,334	10,359	1,183
1982-83	36,679	11,239	13,038	1,041	11,310	12,848	1,308
1983-84	39,907	12,160	14,745	1,153	11,476	15,769	1,584
1984-85	41,423	14,670	16,323	1,180	11,582	18,057	1,699
1985-86P	41,932	15,563	17,474*	1,487	11,359	19,414	1,739

* - Alberta College of Art enrolment included in public colleges.
P - Preliminary *Source: Advanced Education, Alberta*

TABLE 8.28

ENROLMENT, NUMBER OF SCHOOLS, SCHOOL ROOMS AND TEACHERS IN THE ALBERTA PUBLIC SCHOOL SYSTEM - 1975-76 to 1983-84

	Enrolment in Public & Separate Schools	Schools	School Rooms	Teachers	Student/ Teacher Ratio
1975-76	421,785	1,341	17,478	23,131	18.2/1
1976-77	423,314	1,361	18,190	23,193	18.3/1
1977-78	421,833	1,388	18,725	23,211	18.2/1
1978-79	418,715	1,405	19,307	23,363	17.9/1
1979-80	415,595	1,423	19,754	23,560	17.6/1
1980-81	417,016	1,421	19,791	24,036	17.3/1
1981-82	419,656	1,467	22,692	24,331	17.2/1
1982-83	423,690	1,505	24,569	25,227	16.1/1
1983-84	422,801	1,555	25,435	25,675	16.9/1
1984-85	420,751	1,535	27,226	26,030	15.7/1
1985-86 *	436,871	1,533	N/A	26,150	16.4/1

* Preliminary
Source: Advanced Education, Alberta

TABLE 9.1

STANDARD 30 YEAR (1951-1980) NORMALS OF TEMPERATURE, PRECIPITATION, AND FROST - REPRESENTATIVE LOCATIONS - ALBERTA

Location	Altitude (metres)	Temperature °C Extreme Max.	Extreme Min.	January Mean Daily Max.	January Mean Daily Min.	July Mean Daily Max.	July Mean Daily Min.	Precipitation (mm) Mean Annual Rainfall	Precipitation (mm) Mean Annual Snowfall	Frost Free Days Mean
Acme	905	36.7	-43.3	-8.9	-19.4	24.4	9.3	307.5	132.8	103
Aden	1,036	39.4	-40.0	-4.1	-14.8	26.2	11.9	254.4	151.0	129
Alliance	716	37.2	-49.4	-11.6	-20.8	23.9	10.3	326.4	127.7	107
Altawan	945	41.1	-45.6	-9.3	-21.0	28.8	10.7	231.9	137.7	87
Amisk	701	34.4	-44.4	-11.3	-21.1	23.8	10.1	305.4	83.8	90
Andrew	617	32.8	-44.4	-13.4	-23.4	23.4	10.5	334.3	91.7	118
Athabasca	610	34.4	-46.1	-12.9	-22.9	22.5	10.0	352.6	140.6	111
Banff	1,397	34.4	-51.1	-6.5	-16.4	22.3	7.2	263.1	250.9	89
Beaver Mines	1,286	35.6	-45.6	-3.9	-14.2	23.1	7.9	339.6	304.8	87
Bowden	915	34.4	-45.6	-8.4	-19.7	22.8	8.8	354.8	144.9	102
Bow Island	799	40.6	-41.7	-6.0	-16.6	27.6	12.4	249.1	94.2	125
Brooks	758	38.9	-45.6	-8.4	-20.5	25.8	10.8	240.8	104.2	114
Calgary	1,067	33.9	-40.0	-5.2	-16.9	22.9	9.4	283.1	106.1	110
Calmar	716	36.7	-49.4	-10.1	-21.4	23.1	9.5	363.2	125.5	112
Camrose	732	36.7	-47.8	-11.9	-21.9	22.8	10.6	334.5	117.0	113
Cardston	1,154	38.9	-41.7	-2.3	-14.5	25.0	9.4	321.0	229.1	111
Claresholm	1,014	33.9	-37.8	-4.0	-15.8	25.2	11.0	256.8	210.1	130
Cold Lake	541	36.1	-48.3	-14.0	-23.9	22.9	10.9	337.4	135.4	105
Coleman	1,341	33.9	-41.1	-4.7	-14.1	23.0	6.2	350.9	218.1	46
Columbia Ice Fields	1,981	26.1	-41.1	-9.4	-19.0	15.2	2.9	238.6	642.9	16
Consort	753	39.4	-46.1	-13.2	-24.0	24.7	8.9	257.2	85.8	88
Coronation	791	37.8	-44.4	-11.6	-21.3	24.0	10.5	254.7	137.0	115
Cowley	1,189	35.6	-43.3	-4.3	-15.9	24.2	7.3	316.3	233.1	83
Craigmyle	841	37.2	-45.0	-9.8	-19.7	25.0	9.7	280.2	107.7	100
Crossfield	1,128	34.4	-40.6	-6.4	-17.6	22.5	8.3	375.5	132.8	92
Drumheller	687	40.6	-40.6	-8.9	-20.5	27.3	11.2	236.2	89.5	113
Eckville	960	33.9	-45.6	-9.6	-19.8	22.3	8.6	332.1	162.2	94
Edmonton	671	34.4	-48.3	-10.7	-19.2	23.0	11.8	345.6	135.7	140
Edson	923	32.2	-43.3	-8.4	-20.3	22.2	7.8	394.7	196.4	70
Elk Point	594	37.8	-53.3	-14.0	-25.0	23.1	9.7	335.6	118.2	88
Ellerslie	694	33.3	-47.8	-11.5	-21.7	22.4	9.6	338.6	113.6	109

Location	Altitude (metres)	Temperature °C Extreme Max.	Extreme Min.	January Mean Daily Max.	January Mean Daily Min.	July Mean Daily Max.	July Mean Daily Min.	Precipitation (mm) Mean Annual Rainfall	Precipitation (mm) Mean Annual Snowfall	Frost Free Days Mean
Empress	613	42.2	-47.8	-10.2	-21.2	27.3	12.1	202.6	59.9	117
Entrance	1,006	37.8	-51.1	-7.3	-20.4	22.1	6.4	345.5	163.6	60
Foremost	884	41.1	-43.3	-6.3	-16.8	26.7	11.1	233.6	116.2	129
Forestburg	671	35.6	-45.0	-9.5	-20.4	23.8	11.8	323.1	71.4	137
Fort Assiniboine	671	33.3	-48.0	-11.1	-24.8	22.9	7.9	360.8	119.9	79
Fort Chipewyan	232	34.4	-50.0	-20.3	-31.8	22.4	9.7	245.1	158.4	91
Fort Macleod	950	43.3	-45.0	-3.7	-15.3	25.8	10.7	284.5	145.5	125
Fort McMurray	369	36.1	-50.6	-16.5	-27.1	23.1	9.5	332.8	163.8	84
Fort Saskatchewan	625	35.6	-45.6	-11.3	-21.6	23.5	10.6	325.8	99.7	109
Ghost RS	1,434	32.8	-40.6	-3.9	-16.7	20.9	5.7	347.3	216.2	58
Grande Cache	1,250	31.0	-40.0	-7.1	-17.5	20.5	7.1	369.1	278.1	86
Grande Prairie	669	34.4	-52.2	-12.4	-23.0	22.1	9.7	295.0	179.8	116
Hanna	817	38.9	-45.6	-10.2	-21.0	24.9	10.6	274.8	113.1	119
High Level	324	34.4	-50.6	-18.5	-30.6	22.8	8.7	257.9	163.6	71
High River	1,219	37.2	-45.0	-4.7	-17.5	23.2	7.3	316.3	172.0	75
Hinton	1,013	33.3	-41.1	-7.0	-17.9	22.1	6.7	390.7	119.2	63
Jasper	1,061	36.7	-46.7	-7.8	-17.8	22.5	7.6	278.7	152.4	90
Jenner	756	42.2	-48.9	-7.9	-20.4	27.9	10.2	286.1	77.2	106
Kananaskis	1,390	33.9	-45.6	-4.0	-16.3	21.8	6.3	360.2	291.6	58
Lac La Biche	565	31.7	-46.1	-13.2	-24.1	22.6	9.6	367.6	133.0	105
Lacombe	847	38.3	-49.4	-10.0	-21.0	23.1	9.2	326.3	122.7	99
Lethbridge	929	39.4	-42.8	-4.5	-16.0	26.1	11.0	269.2	175.8	124
Lloydminster	646	37.8	-46.1	-13.8	-22.7	23.4	11.1	330.6	93.9	120
Manyberries	934	40.6	-42.8	-7.6	-18.7	26.8	11.6	220.6	133.5	123
Medicine Hat	717	42.2	-46.1	-7.0	-18.3	27.3	12.4	236.2	125.5	129
Milk River	975	41.1	-40.6	-5.5	-16.0	26.6	11.1	226.6	84.1	124
Olds	1,040	37.2	-43.9	-7.7	-18.7	22.4	9.1	353.2	135.1	109
Oyen	792	35.6	-42.0	-11.1	-20.4	24.1	11.1	245.6	107.8	124
Peace River	571	36.7	-49.4	-14.9	-25.6	22.3	9.0	256.4	146.4	93
Pincher Creek	1,145	35.6	-41.7	-4.0	-14.9	24.5	8.3	298.4	316.2	106
Raymond	957	37.8	-45.0	-4.2	-15.6	25.8	10.2	260.9	156.7	120
Red Deer	847	37.2	-50.6	-9.7	-20.3	23.0	9.9	328.6	130.1	103
Rimbey	914	32.8	-44.4	-9.4	-19.5	22.2	8.9	367.2	112.2	107
Robb	1,130	32.2	-42.2	-7.1	-19.5	21.3	6.3	416.3	208.4	72

Location	Altitude (metres)	Temperature °C Extreme Max.	Extreme Min.	January Mean Daily Max.	January Mean Daily Min.	July Mean Daily Max.	July Mean Daily Min.	Precipitation (mm) Mean Annual Rainfall	Precipitation (mm) Mean Annual Snowfall	Frost Free Days Mean
Rochester	648	33.9	-49.4	-13.1	-24.1	22.5	8.6	377.3	97.7	75
Rocky Mountain House	1,015	33.3	-43.9	-7.4	-18.5	22.0	8.6	389.3	187.8	100
Sedgewick	686	39.4	-52.2	-11.8	-22.2	23.9	10.3	305.7	114.8	94
Shining Bank	829	32.8	-49.4	-9.7	-23.1	21.5	7.4	366.1	124.0	85
Sibbald	716	40.6	-46.1	-11.5	-22.4	26.1	10.1	232.2	88.6	95
Stettler	823	37.8	-46.7	-10.4	-20.1	23.7	10.3	321.5	108.8	118
Strathmore	930	35.6	-40.6	-8.3	-19.1	24.0	9.2	283.0	138.0	110
Taber	808	40.6	-43.3	-5.3	-17.1	26.3	11.4	251.7	129.9	131
Thorsby	744	36.7	-48.3	-9.5	-19.2	23.1	10.2	366.8	100.2	103
Three Hills	841	40.0	-48.3	-9.5	-21.7	24.9	8.1	281.7	109.1	76
Trochu	892	36.1	-44.4	-8.9	-20.8	24.7	8.2	239.5	124.7	93
Turner Valley	1,237	32.8	45.6	-4.5	-19.2	21.4	7.3	342.7	231.6	79
Valleyview	762	33.3	-46.1	-10.5	-21.0	22.4	9.2	363.7	168.7	105
Vauxhall	779	39.4	-46.1	-6.5	-18.9	26.8	10.3	228.9	118.5	113
Vegreville	636	35.6	-51.1	-12.4	-23.8	23.2	9.4	319.8	83.8	83
Vermilion	619	37.2	-50.6	-13.1	-23.6	23.2	9.8	313.2	105.8	100
Viking	691	39.4	-56.1	-13.3	-22.7	23.9	10.3	341.5	107.2	107
Vilna	640	34.4	-48.3	-13.8	-25.2	22.5	8.3	352.0	135.6	71
Vulcan	991	37.8	-35.0	-6.9	-17.4	25.4	9.7	295.9	142.3	116
Wanham	607	33.9	-48.3	-13.1	-23.3	22.0	9.7	301.3	159.6	109
Wetaskiwin	756	37.2	-50.0	-10.6	-20.3	23.1	10.2	350.9	140.4	114
Whitecourt	741	33.9	-50.0	-10.8	-22.3	22.2	7.9	395.8	173.7	69

Source: Environment Canada


Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St. Albert
Edmonton
Lloydminster
Leduc
Camrose
Wetaskiwin
Jasper
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
MAJOR PHYSIOGRAPHIC DIVISIONS
km 25 0 25 50 75 100 km
miles 25 0 25 50 75 miles
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TABLE 9.2

MONTHLY AND ANNUAL DISCHARGES, SELECTED ALBERTA RIVERS - SPECIFIED PERIODS (CUBIC METRES PER SECOND)

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
Athabasca River	mean	33	30	31	47	180	516	503	366	227	120	60	41	180
at Hinton	max	58	47	48	141	372	752	883	529	359	199	100	100	219
1915-1939,														
1955-1984	min	18	12	15	23	66	308	352	269	132	70	34	24	141
Athabasca River	mean	187	169	171	530	1,110	1,370	1,460	982	817	609	355	213	681
below Ft.														
McMurray	max	242	213	224	1,030	2,080	1,890	2,740	1,380	1,510	864	490	293	884
1957-1984*	min	109	109	107	213	551	825	883	578	435	342	233	107	481
Battle River	mean	1	1	2	33	34	13	9	6	5	4	2	1	9
near Unwin, Sask.	max	4	3	12	93	260	58	29	28	47	26	16	8	41
1944-1979*	min	**	**	**	4	4	2	1	**	**	**	**	**	2
Bow River	mean	45	43	43	54	101	234	197	131	91	63	50	45	92
at Calgary*	max	78	79	82	107	207	472	437	237	192	106	82	80	147
1911-1984	min	21	20	19	29	44	120	89	84	59	27	30	22	58
N. Saskatchewan														
River	mean	55	53	59	161	285	532	530	384	241	138	81	57	215
at Edmonton+	max	141	146	181	432	1,130	1,090	1,210	864	774	294	168	146	363
1911-1984*	min	17	16	25	59	97	188	166	134	108	78	38	20	140
Oldman River	mean	22	24	41	81	245	338	126	41	38	42	36	24	87
near Lethbridge+	max	95	87	144	222	553	941	401	150	249	162	105	56	195
1911-1984*	min	6	7	12	14	29	26	8	5	6	6	12	6	17
Peace River	mean	653	625	618	1,390	3,440	4,980	3,280	1,740	1,330	1,350	1,020	775	1,780
at Peace River+	max	1,860	1,800	1,690	3,020	5,730	11,000	5,860	4,970	2,250	2,390	1,880	1,940	2,680
1915-1932,														
1957-1984	min	236	222	199	441	1,380	1,770	1,160	837	622	603	430	226	904
Red Deer River	mean	8	8	16	64	83	129	99	64	49	31	18	10	48
at Red Deer+	max	17	16	73	205	383	392	474	252	293	111	52	25	125
1912-1984*	min	3	3	5	13	15	37	32	29	18	13	8	3	21
Slave River	mean	1,970	1,860	1,640	1,890	4,530	5,860	5,620	4,780	4,160	3,880	2,630	2,000	3,400
at Fitzgerald+	max	2,870	2,860	2,710	3,310	7,420	7,800	7,650	7,290	5,720	5,280	3,820	2,590	4,340
1960-1984	min	1,260	979	717	901	2,900	3,900	3,170	3,020	2,610	2,740	1,720	1,380	2,590
S. Saskatchewan														
River	mean	71	76	114	188	374	642	357	162	122	111	97	73	200
at Medicine Hat	max	197	149	270	559	1,020	1,640	1,070	523	628	401	263	148	418
1911-1984*	min	30	34	47	62	41	87	44	46	23	18	36	27	66

* Incomplete data (relatively few months or years missing, other than shown)

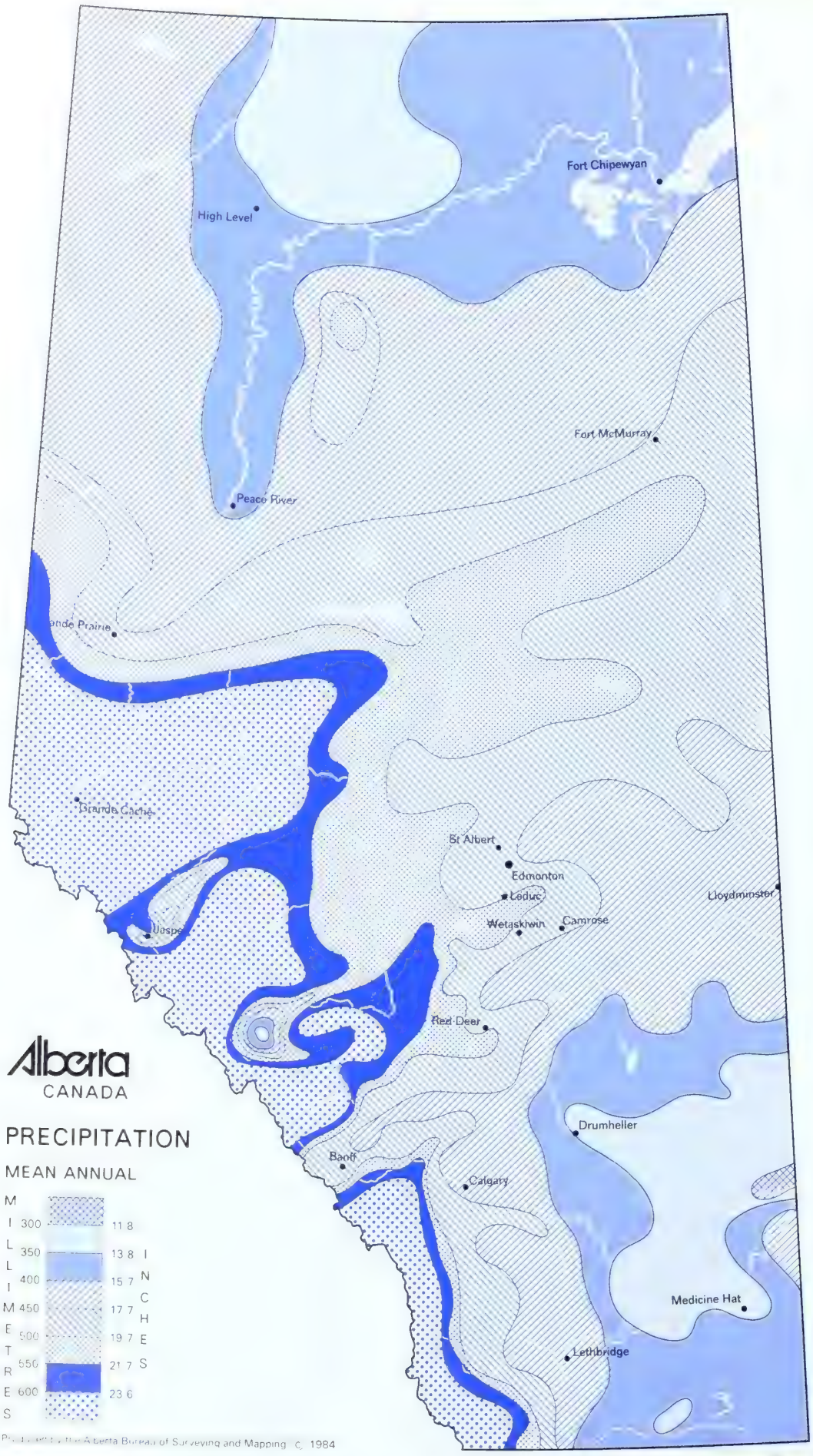
** Less than 1 cubic metre per second

+ Regulated for part of period

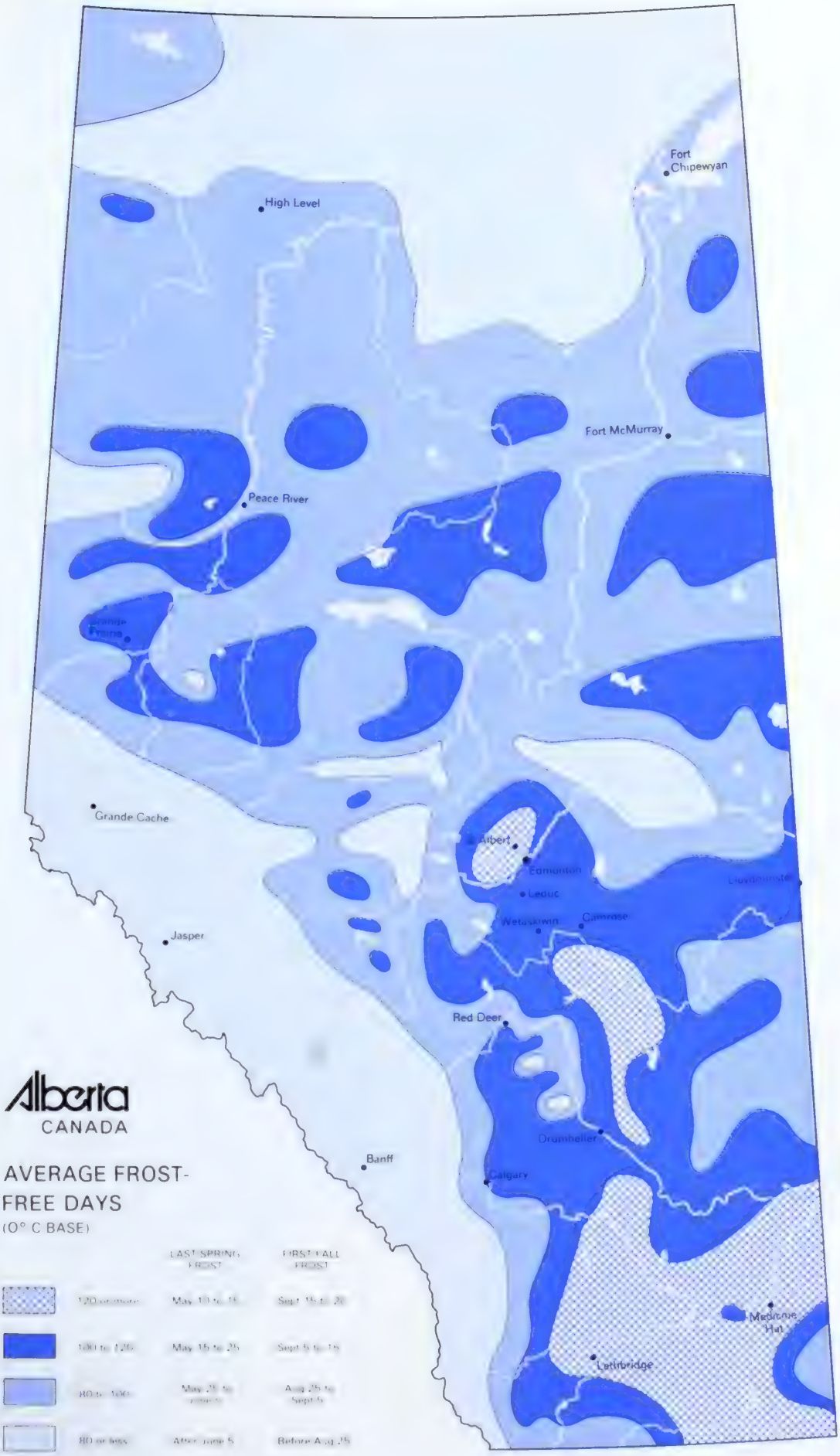
Bow River increasingly since 1913, North Saskatchewan River since 1960, Peace and Slave since 1968, Oldman River for most of the record period, and Red Deer River since 1983


Fort Chipewyan
High Level
Fort McMurray
Peace River
Grande Prairie
Grande Cache
St Albert
Edmonton
Lloydminster
Camrose
Jasper
Wetaskiwin
Red Deer
Drumheller
Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
SOILS
BROWN SOILS
DARK BROWN SOILS
BLACK SOILS
DARK GREY AND
DARK GREY WOODED SOILS
GREY WOODED SOILS
BROWN WOODED AND
ACID BROWN WOODED SOILS
UNDIFFERENTIATED MOUNTAIN COMPLEX
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Fort Chipewyan
High Level
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Banff
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
BEDROCK GEOLOGY
CANADIAN SHIELD
PRECAMBRIAN
Granite, Gneiss, Quartzite
INTERIOR PLAINS
TERTIARY
Sandstone, Shale, Coal
LOWER CRETACEOUS
Shale, Oil Sands
UPPER CRETACEOUS
Sandstone, Shale
Coal, Bentonite
DEVONIAN
Limestone, Dolomite
Salt, Gypsum
CORDILLERA
FOOTHILLS
Cretaceous, Jurassic, and Triassic Formations
Sandstone, Shale, Coal, Carbonate Rocks, Gypsum
ROCKY MOUNTAINS
Paleozoic and Precambrian Sedimentary Rocks
Limestone, Dolomite, Shale, Quartzite



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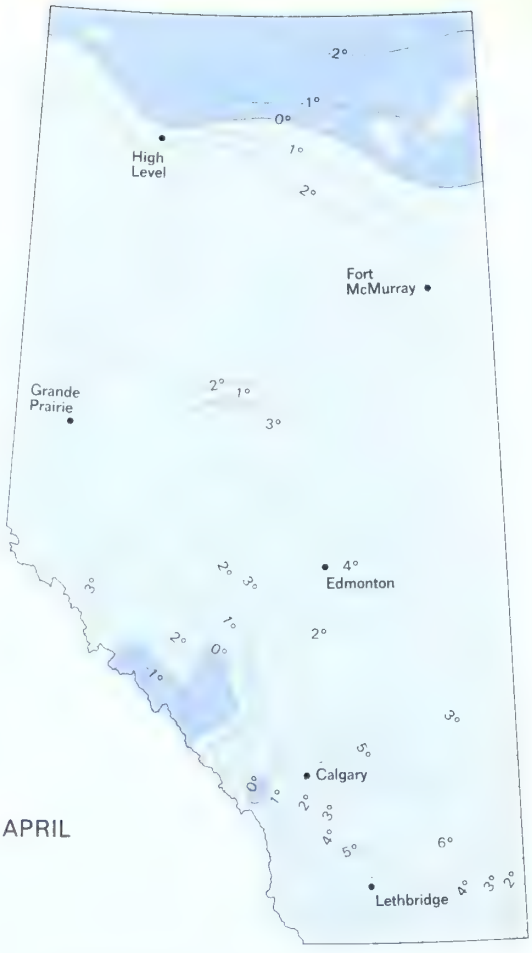

Fort Chipewyan
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Drumheller
Calgary
Medicine Hat
Lethbridge
Alberta
CANADA
AVERAGE FROST-FREE DAYS
(0° C BASE)
LAST SPRING FROST
FIRST FALL FROST
May 15 to 25
Sept 5 to 15
After June 5
Before Aug 25

Alberta
CANADA

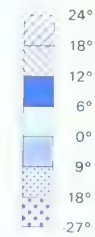
MEAN TEMPERATURE



JANUARY



APRIL



ISOTHERMS IN DEGREES CELSIUS

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JULY



OCTOBER



Alberta
CANADA

MEAN ANNUAL RIVER DISCHARGES

Inflow and outflow values represent the annual volume
Based on recorded data up to 1980

Total Outflow	131 469 000 000 m³ (106 584 000 Acre-Feet)
Total Inflow	71 157 000 000 m³ (57 688 000 Acre-Feet)

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Eastern U.S. Operations

Alberta Economic Development and Trade
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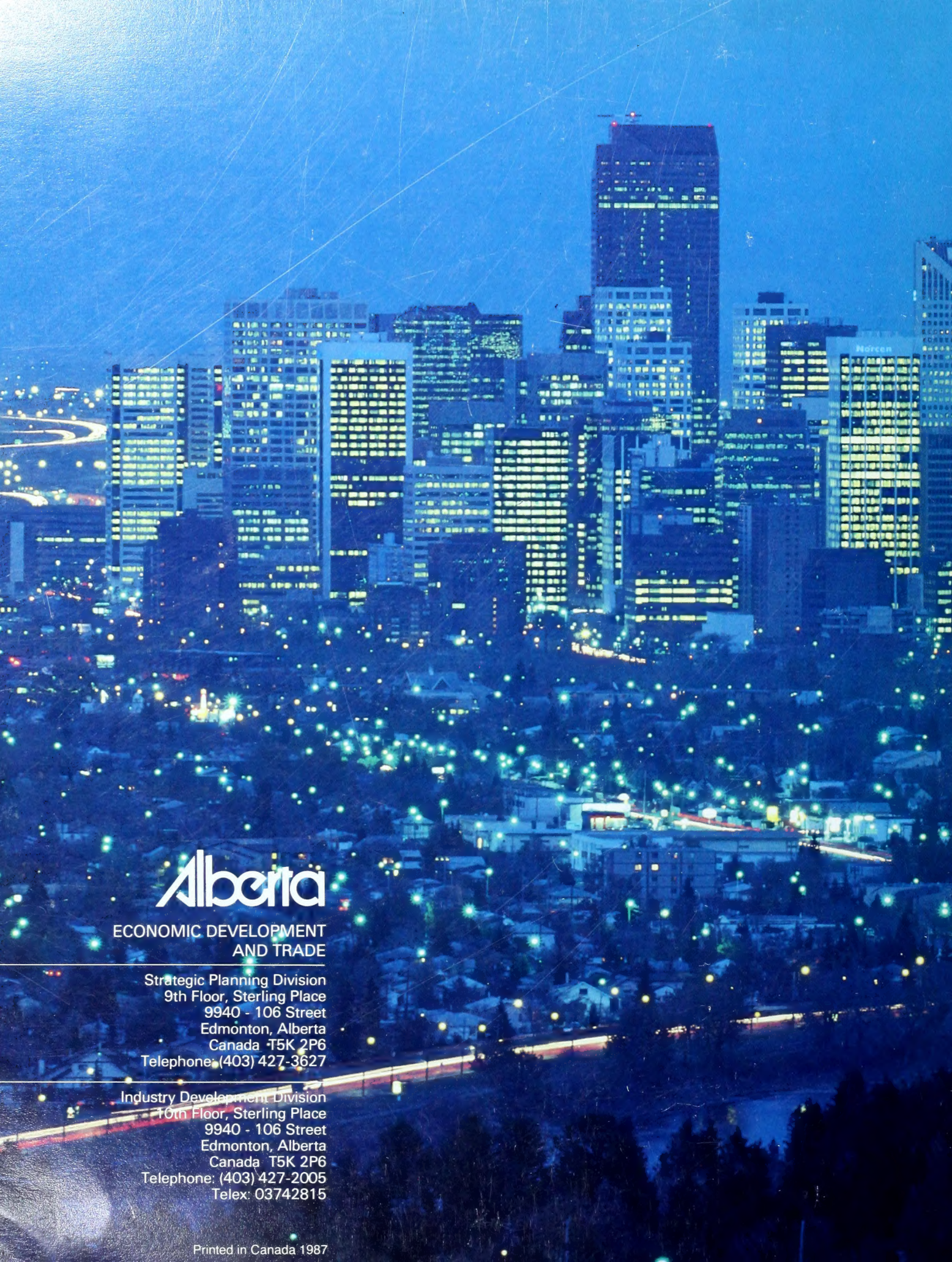
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